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Remarks on the Treatment of Paralysis. By J. C. PRICHARD,
M. D. &c.

(From the London Medical Repository.)

The attention of medical Practitioners has been more directed of late, than it was formerly, to the state of the medulla spinalis, in cases of paralysis, and in other disorders affecting the system of voluntary muscles. Yet I am disposed to believe that many persons are not aware of the degree in which this portion of the nervous system is often concerned in the production of morbid phenomena, or of the extent to which relief may sometimes be afforded by a class of remedies pointed out by this indication. Many cases have fallen under my notice, from time to time, which have strongly impressed me with the importance of the measures I allude to, and some of these I am desirous of laying before the public through the medium of the Medical Repository. In the observations which follow, I am aware that I am not bringing forward any thing that is altogether new, either in theory or practice ; but I think it worth while to detail some facts tending to establish and illustrate a practical indication, which has not as yet been universally followed or admitted.

My attention was particularly drawn to this subject by some observations published by Dr. Esquirol, to which I have had occasion to refer in page 330 of my treatise on Disorders of the Nervous System, and by a remarkable case which I have detailed in the same place. By these observations I was convinced of the necessity of inquiring particularly into the state of the

medulla spinalis in disorders of the nervous and muscular functions. The first cases which happened to afford me an opportunity of following this suggestion, were some severe instances of chorea, which proved fatal, at the Bristol Infirmary. Some of these occurred in adult females. In one of them the disease seemed to have arisen from the metastasis of rheumatism; in others it was said to have been occasioned by sudden fright.—The bodies were examined by Mr. Swayne, the house Apothecary, a man of extensive and accurate observation, as well in morbid anatomy as in the phenomena of disease. As few dissections are upon record which tend to illustrate the pathology of chorea, though the mode of treating this disorder is well understood, it may be worth while to insert here some account of the appearances discovered in these cases, with a very brief outline of the previous history.

Case 1st.—Mary Salter, aged nineteen, was admitted, February 12th, 1818, labouring under chorea. The convulsive motions affected the right side. The remedies used in her case were purgatives and the oxyd of zinc. She was discharged cured April 22d, 1818.

May 7th, 1818.—She was seized with fever, and discharged cured June 24th, 1818.

October 14th, 1819.—She was attacked with acute rheumatism, principally affecting the joints: for this she was repeatedly bled and much purged. In the course of six or seven days the rheumatic symptoms were completely subdued, when suddenly she was seized with jerkings, or convulsive motions, apparently affecting the whole body, which, gradually increased in violence for three or four days, when she died.

Morbid Appearances.—Six drams of serous fluid in the ventricles of the brain. Pericardium adhering to the heart. The spinal canal in this instance was not examined.

Case 2d.—Elizabeth Snow, aged seven years, was said to have been afflicted with St. Vitus's dance from her infancy. In the infirmary (where she was admitted October 8th, 1821,) she became delirious, and afterwards comatose, from which state she could not be roused. She expired; and the following is a report of the appearances observed in her body twelve hours after death:—

Dissection.—The whole length of the spinal column was laid open. Within the sheath of the medulla spinalis a large quantity of serous fluid was found effused; so great was the quantity, that when first a snip with a pair of scissors was made in the sheath, this fluid was poured out in a stream. The vessels on the surface of the medulla were very finely injected with blood.

The brain was very firm in texture: much firmer than it is generally seen in a child. There was a slight effusion under the arachnoid membrane on the hemispheres and in the ventricles; but there was a considerable quantity under the arachnoid at the basis of the brain and at the commencement of the medulla spinalis.

Case 3d.—Mary Anne Harding, aged nineteen. This girl was a common prostitute. She was admitted October 8th.—About seven days before, she had been suddenly frightened, and was seized by a fit, after which her legs were agitated by chorea, which continued, and at length her whole body became affected by jerking motions. She became delirious, or rather maniacal, in the infirmary, and died on the 3d of November. She was in other respects in a very diseased state, and her death was apparently occasioned, in a great measure, by an extensive abscess on the left scapula, and by the consequences of an abortion which she underwent during the time she passed in the infirmary.

Dissection.—The brain was rather more vascular in appearance than usual, and the surfaces watery: the plexus choroides was turgid with blood: a somewhat larger quantity of serum than usual was found under the membranes and at the basis of the brain. The ventricles contained little or no fluid. Altogether, there was no striking or remarkable appearance of disease in the encephalon.

A greater quantity of serum was observed at the foramen and at the entrance of the spinal cavity. On raising the trunk and depressing the head, between one and two ounces of serum flowed out, evidently from the dorsal part of the canal. On opening the spinal sheath at the lower dorsal vertebræ and the upper lumbar, the membranes were found in a highly injected state.

Case 4th.—Sarah Carratt, aged fourteen, was seized, after a fright, with tremor and general agitation, which gradually assumed the character of chorea. Admitted December 24th, 1821. On January 1st, she died: the agitation of her limbs continued till within a few minutes of her death. It had been so violent as entirely to prevent sleep.

Dissection.—When the theca of the spine was slit open, about an ounce of serous fluid escaped: the vessels of the medulla were more distended than usual, and nearly at the middle of the back there was a layer of coagulable lymph, which had been deposited on the dura mater.

The brain, including the cerebellum, was unusually red; its surfaces vascular; its substance, when cut, exhibiting innumer-

able bleeding points. There was a small quantity of fluid under the arachnoid membrane and in the ventricles.

If we compare these appearances with the phenomena observed in other cases of chorea, in which the dissection of the brain has seldom exhibited any thing remarkable, it seems very probable that the chief seat of disease, or, to speak more strictly, the principal seat of morbid appearances as displayed by anatomy in affections of that kind, will be found to be in the medulla spinalis. If we further take into the account the facts formerly alluded to, I mean principally the observations cited from Dr. Esquirol, we may venture to extend the same inference to many cases of epilepsy, and other disorders chiefly affecting the functions of the muscular system. There seems to be no pathological reason for excepting from this conclusion some modifications of palsy. Morbid causes acting within the spinal canal are likely to produce effects similar to those which arise from injuries or a diseased state of the vertebral column. In those instances where we find paralysis supervening on chorea or epilepsy, particularly when the paralytic state comes on gradually, we may often expect to find the cause of disease in the spinal marrow. The same observation may be applied to paraplegia; and in hemiplegia, at least in cases of palsy affecting an upper or lower extremity, or both, on one side of the median line, the morbid cause may be in the spine. When hemiplegia is complete, and affects the muscles of the face, of speech, and of deglutition, it must, for obvious reasons, be referred to some change which has taken place within the encephalon itself; but even in many cases of this description, it is probable that various parts of the nervous system partake of the same morbid condition, and we are not entirely precluded from expecting to derive benefit from issues near the spine.

The application of blisters and other local remedies to the back, which was suggested by morbid appearances above described, was found in no case to alleviate chorea, but rather to aggravate the complaint. Such was the fact in every instance of this disease in which this plan of treatment was tried; and, in general, no cases were so speedily cured as those which were treated simply by doses of the oxyd of zinc, preceded by some purgative medicines. But a case soon afterwards occurred in which blisters and issues appeared to produce the most decisive and important benefit: this was not an example of chorea, but of general paralysis supervening on chorea. The patient was a boy thirteen years of age, who had probably inherited a predisposition to disease of this description, since one, if not more, of his male relatives had been, at an early period of life, complete-

ly crippled by it. The following is the substance of some notes which I have preserved respecting this case :—

Joseph Ivory, aged thirteen years. Admitted September 25th, 1820. The parents of this boy date the commencement of his illness from a circumstance which befell him about ten months ago, when he was beaten severely across the shoulders, but, as it appears, not materially injured. From that time he was accustomed to cry and moan, and appear at times greatly distressed. Soon afterwards he became affected with jerking motions of his limbs, and was perceived to labour under St. Vitus's dance. The limbs of the right side were chiefly affected. Lately, the limbs of the same side began to become feeble. He lost the power of moving them, and by degrees his other limbs became affected in like manner. He cannot move the fingers and toes. He suffers much agitation, and a sort of tremor, whenever he passes his urine. His pupils are considerably dilated in a moderate light, and do not completely contract on the admission of a stronger light.

He has already been an out-patient for some time, and has taken some purgative medicine. His abdomen is quite flaccid. Pulse in the carotid stronger in proportion than that at the wrist. Great languor.

Hirud. 12 ad tempora admov. Emp. Lyttæ long. ad columnam vertebrarum. Emuls. Terebinth. 4ta quaque hora.

27th.—Only three leeches drew any blood. The blister which lay over the dorsal vertebræ has drawn much, and seems to have produced some effect on the disorder. He can now move his toes and fingers a little. He sleeps better, and is able to pass urine more easily than before his admission.

Repet. Emuls. Terebinth. Empl. Nuchæ admov.

28th.—Fluant e brachio sang. 3xjv.

30th.—He has been improving daily : he can now use his limbs tolerably well.

October 2d.—He can now raise himself in his bed. His pupils are still somewhat deficient in irritability. Pulse natural in the arms—somewhat too full at the carotids. The blister on the spine is quite healed. Bowels relaxed by the turpentine emulsion.

Repet. Emp. Lytt. ad vertebrae dorsi.

5th.—The blister produced much irritation. However, on the day after it was applied, the power of motion was improved.

Blister to be kept open, with alternate dressings of Ung. Sabinæ and Ung. Cetacei.

7th.—He is still improving—can use his arms, though the right arm remains weak. He can walk, helping himself along

by the aid of his left arm. He still suffers much irritation from the effects of the blister.

Haust. Anod. cum Tinct. Opii, g^{ss}. x. h. n.

21st.—Complains of nausea from the turpentine emulsion.—He can now walk pretty well.

House diet. Omit the emulsion. Argent. Nitrat. gr. j. ter indices in pil.

27th.—Abdomen rather tumid.

Pil. Cath. iij. altern. noct. Shower-bath every second day.

November 9th.—Is yet weak in the right hand.

Electricity was ordered to be tried.

18th.—No improvement is taking place. The right arm and leg is still weak.

An issue was made some time after, by means of caustic, on each side of the spinal column in the loins. In each of these a row of peas was kept for several months. This remedy appeared to be of use; he gradually recovered, and became a very active boy. He was often used for an errand-boy.

November 6th, 1823.—Ivory is still in the house, having been kept partly on account of his activity and usefulness. He has now no remains of his complaint, except that a slight halting motion is occasionally perceptible in his right leg. The issue has been long ago healed.

In this case the change for the better was decidedly the effect of the remedy applied, as far as the immediate consequence of one thing upon another can authorize such a conclusion. But in order that this inference may be completely established, it is requisite that a similar connexion between the same means and the result should be observed in a variety of instances. A sufficient number of such instances has fallen under my own observation to afford me a perfect conviction on this point, but this conviction I can only hope to convey partially to my readers. I shall, however, request their attention to the following details of some cases, which appear to me to afford a strong evidence. In selecting them I have taken care to avoid a source of ambiguity which often renders uncertain our conclusions respecting the effect of remedies in paralytic and other chronic disorders. The changes which take place in these affections are often slow, and it is difficult to determine how far an amendment by imperceptible degrees is the result of artificial remedies, and how far it belongs to that restorative process which the powers of nature, in many cases, spontaneously and gradually carry on. In the following instances, the reader will observe that the disease had remained stationary for a considerable time before the measures I am now recommending were adopted. There seemed to be

no tendency to improvement ; but a change for the better immediately ensued on the application of blisters or issues to the spine, and a similar result was produced on every repetition of the same remedy. No stronger proof of the connexion of cause and effect can be expected.

The two following cases occurred among the in-patients at the Bristol Infirmary. One was a case of general paralysis ; the other of hemiplegia.

Mary Daniel, aged fifty. Admitted January 13th, 1823. A woman of dark complexion, middle bulk and stature. About a month ago she was seized with a violent vomiting, at the same time with severe headach, followed by profuse bleeding from the nose. Soon after she lost the use of her limbs. At present she cannot use either of her hands or feet, and complains of deadness or numbness in them. She has no headach. Bowels regular. Tongue rather white. Pulse somewhat full, especially in the carotid.

This appeared to be a case that required depletion, and that was likely to be relieved by it. I therefore determined to try the effect of bleeding and purging for some time before having recourse to any other remedies.

She was bled twice to the amount of sixteen ounces each time in the first week, and took three cathartic pills every night, and a cathartic draught three times in the day, when the effect was not too great. On the 28th, cupping-glasses were ordered to be applied to her back.

January 29th.—She has been much weakened by the evacuations she has undergone. At first, she fancied that her complaints were somewhat relieved by the evacuating remedies, but, on the whole, that does not appear to have been the case.

It was evident that no benefit was to be expected from further evacuations. That plan was therefore entirely relinquished. She was now ordered a chalk mixture to restrain the action of the bowels, which had become distressing and irritating. Afterwards some small doses of nux vomica were given her.

February 17th—No improvement has taken place in the power of muscular motion ; the hands are benumbed and extremely weak.

A blister was now applied to the spinal column ; and small doses of oil of turpentine, viz. from 3ss. to 3j. were prescribed to be taken three times in the day.

21st.—Omit. ol. tereb.

R Infus. Calumbæ cum Ammon. Carb. bis indies.

26th.—Blister repeated to the lumbar vertebræ.

March 17th.—She has greatly recovered the power of moving

her limbs. Complains chiefly of weakness in her ancles, which bend under her when she attempts to walk about the ward. The improvement seems evidently to have arisen from the blisters.

She continued to improve from this time, and was soon able to walk about the ward ; at first with the help of a stick, but afterwards without assistance. She also became able to use her hands in sewing.

October 21st.—Discharged. She was able to walk tolerably well without assistance, and to use her hands, though the strength of her limbs was not completely restored. She would not consent to have an issue on her back.

Parthenia Roberts, aged fifty-seven. December 20th, 1821. A woman of fat, full habit, by occupation a nurse. She has had two attacks of palsy before the present : this last attack was a complete hemiplegia, which has entirely deprived her of the power of motion on the left side. She cannot stir hand or foot, and labours under palsy of the bladder. The disease seized her, accompanied with vertigo, six weeks ago.

Ven. Sec. fluent sang. 3xvj. Capilli abrad. Vesicat. capiti admoveatur.

R Pulv. Cath. statim. Haust. Cath. 4ta quaque hora.

25th.—Pil. Cath. iij. omni noct. Mist. Cath. ter indies.

From this time until the first week in March the antiphlogistic and evacuating plan was regularly pursued. She took purgative medicines continually, in as large and frequent doses as her strength appeared to bear, and she was kept on low diet. In the course of the interval above mentioned she was twice bled. She improved very little under this regimen, and on the 6th of March it was laid aside. The compound infusion of horse-radish was then ordered for her. At the same time, a blister was applied between her shoulders, which was followed by an issue. She now began speedily to recover the power of moving her limbs. In a fortnight after these applications were commenced, she could walk about with the help of a person holding her arm. She continued to improve, and on the 20th of May was made an out-patient. She had then regained, in a great measure, the use of her limbs, and could walk about the ward without difficulty.

The two following cases, one of which is an instance of paraplegia and the other of hemiplegia, occurred at St. Peter's Hospital. The notes which I here insert were furnished by Mr. Brady, the Apothecary at the hospital, a very intelligent and able Practitioner, under whose immediate care the patients are placed. It may be observed in the account of the first of these

cases, that an issue producing a purulent discharge succeeded as the means of restoring sense and power to the paralysed extremities, after blistering had entirely failed—a proof of the greater efficacy of the former remedy, of which I have witnessed numberless examples.

Mary Cocomb, aged thirty. Admitted 16th January, 1822. This woman had been suffering from numbness and diminution of the power of motion in the lower extremities for eleven weeks previously to her admission into the hospital. During a part of that time she had been an out-patient at the infirmary, and when she became unable to walk thither, she was attended at her own dwelling by the medical Practitioner of the dispensary. She received some benefit, and was discharged from the dispensary. A short time after she relapsed, and when brought into this house, laboured under complete paralysis of the lower extremities. She likewise had symptoms of disordered liver.—She was ordered a warm bath, a dose of purgative pills at night, and aperient saline draughts every fourth hour.

17th.—Stools dark and fetid.

Repeat the warm bath and continue the medicines. A large blister to be applied to the loins.

19th and 20th.—She has continued the pills and laxative draughts. Her stools are now natural; tongue clean; the hepatic symptoms have quite subsided. She is still unable to move the lower extremities: she says she has more feeling in them.

Repet. Pil. et Haust. Cath. alt. dieb. Dress the blistered part with Ung. Sabinæ.

25th.—She has continued the purgatives every other day.

29th.—The blister healed. Still she is unable to move the lower extremities.

A large issue to be made by caustic over the sacrum.

February 8th.—Has continued the cathartics. The issue discharges freely. She can move the extremities a little.

16th.—Has continued the cathartics every other day. The issue discharges copiously. She is able to bear the weight of her body, and walk across the room with assistance.

24th.—She has gained much strength and motion in the lower extremities. She is now able to walk without assistance.

From this time she took occasional purgatives. The issue was kept open and discharged copiously. On the 13th of March she was dismissed from the hospital perfectly cured, having as much strength and activity in her lower extremities as she ever

had. Six months after her dismissal she remained perfectly well.*

Mary Chourd, aged forty-one. Admitted January 2d, 1823. About six weeks since she was seized by a violent epileptic fit, occasioned by a fright. Subsequently she was paralysed on her left side. She had been attended, previously to her admission into the hospital, by the medical Practitioner of the dispensary. At the time of her admission she was labouring under hemiplegia of the left side ; her bowels constipated ; tongue loaded ; pulse regular, rather feeble. She was ordered,

Pulv. Cathart. Haust. salin. aperiens ter indies. Cucurb. Cruent. dorso.

3d.—Bowels freely evacuated ; stools natural ; appetite good. Only a small quantity of blood could be obtained by cupping.

A large blister to be applied to the back.

12th.—A good discharge was obtained from the blister by the application of stimulating dressings. She has gained some degree of motive power in the lower extremity, which was paralysed.

After this time blisters were repeatedly applied along the spine of the back : her bowels were kept open. She has now quite recovered the use of the affected limbs, and walks very well.

This report is dated June 23d, 1823.

After saying so much with the view of recommending the use of blisters and issues applied to the spinal column in cases of paralysis, I must take care to prevent the reader from mistaking my meaning, and apprehending that I propose these remedies as the first and most important measure; or design in adopting them to supersede the use of those remedies with which the treatment of palsy, especially when occurring under the form of hemiplegia, and accompanied by any degree of apoplectic symptoms, ought to be commenced. I am fully aware that in a recent attack of palsy, depletive measures should generally, perhaps in every instance, be adopted, to a greater or less extent ; and that in old cases, in which they had not been used in the outset, they are often to be employed with advantage. To what extent the detraction of blood and the use of purgative medicines are to be carried, and how long the antiphlogistic and evacuating regimen is to be pursued, must depend on the circumstances of each

* During this woman's attendance at the infirmary, and afterwards at the dispensary, she had been repeatedly bled from the arm and by leeches on the back.

particular case, on the state of the circulation, and on the age, habit, and constitutional vigour, of the individual.

With respect to this subject, I apprehend that many Practitioners adopt an erroneous principle, in pursuing the method of depletion only to the minimum ; or in carrying it only so far as some particular exigency, some remarkable fulness of the arteries leading to the brain, or the immediate danger of a renewed attack, may seem to require. On the other hand, I have generally observed that those cases had the most prosperous result in which evacuations were carried to the maximum—or as great an extent as, after taking all circumstances into consideration, it seemed perfectly safe to venture upon : that is, when the patient was bled and purged as much as he could bear, without incurring the risk of too great prostration or subsequent debility. It is chiefly after various methods of depletion, general and local, have been adopted and pursued for due time, that recourse may be had, with a prospect of advantage, to the use of blisters and issues in the neighbourhood of the spine. When the plethoric state of the vascular system, which, whether general or local, gives rise to almost every case of paralysis, has been reduced ; when the irregular determinations of blood have subsided, and we are looking forward to a gradual recovery of the lost powers of sensation and locomotion, I am persuaded that these measures will generally be adopted with great benefit.

It is not my object, in writing the present paper, to discuss the merits of the different remedies which have been thought serviceable in paralytic disorders ; but I am desirous of taking the opportunity which it affords me to recommend one internal medicine, from the use of which I am persuaded some advantage will be derived. There is a period in most severe cases of paralysis, when the Practitioner is disposed to have recourse to stimulating remedies, or to such means as tend to excite sensation and action in the paralysed parts. The local application of heat, electricity, friction, &c. is then advised, and a variety of internal remedies are given, which are supposed to be subservient to the same indication. Ammonia, mercurials, aromatics, the infusion of horse-radish, nux vomica, and a great number of medicines, are frequently prescribed, and some of these are preferred to others by various Practitioners. For my own part, I am acquainted with no remedy on which I can place so much reliance in the state of things I have alluded to, as on the oil of turpentine. As far as I can venture to form an opinion from the cases which have fallen under my observation, I am persuaded that there is no other stimulant at present known in medicine which may be used with so much advantage in the

class of disorders now under consideration. On what principle it acts, or how it is more efficacious than other remedies which are commonly thought to be analogous to it, I do not undertake to determine; nor is this at all necessary, since I do not recommend its use on the credit of any theoretical notion, but on the ground of actual facts and repeated observations. Conjecturally, however, I should say that this remedy has some specific and peculiar influence on the nervous system, on which its beneficial effects depend. The degree of vertigo and occasional intoxication which follows its use in a large dose, renders this supposition, as Dr. Latham has already remarked, extremely probable. In paralytic cases, I have generally prescribed it in the dose of ʒss. to ʒj. and even to ʒij. three times in a day. When so administered at the proper stage of the disorder, it contributes to restore the tone of the system, and appears to promote the recovery of sensation and motive power in the paralysed parts.

II.

Essay on Caries, and its Treatment. By ROBERT LISTON, F. R. C. S. &c.

(From the Edinburgh Medical and Surgical Journal.)

Amongst the many brilliant improvements which have been effected in this country in the cure of surgical affections, some diseases appear to have been comparatively overlooked and neglected. The disease known under the term Caries is one of these; and the active practice of our forefathers (by them employed indiscriminately enough,) has not only been abandoned for one most inert, hurtful and unsatisfactory, but the symptoms and appearances, of themselves sufficiently distinctive, have been confounded in many works with those of diseases most widely different in every respect. As this Essay may probably be followed, at some future period, by notices of other diseases and injuries of the bones, it may be proper to premise a few remarks on the pathology of this part of the structure.

It is well known that bones grow and are nourished by the same means as other parts of the system, and are subject to the same laws. Together with the other white textures, they are less freely supplied with blood-vessels and nerves in proportion to the other parts, more especially after their growth is completed.

When incited action of the blood-vessels in their harder structures takes place, their sensibility is roused to an exquisite degree, and their healthy or perverted processes are carried on

with great vigour and amazing rapidity. Solution of continuity in bones is repaired by the agglutinative process, or union by the first intention ; or if, from the nature and circumstances of the injury, or the improper interference of art, Nature is in this thwarted, the breach will be repaired by granulation. The granulations will be found to shoot from the broken surfaces, the vessels of which become extremely active, and the callus or new bone is the result of their assimilation or consolidation. To the surrounding soft parts has been attributed a great share of the work in the union of broken bones ; and when bones have been fractured in circumstances not admitting of this assistance, the process of reparation, it is said, cannot be accomplished.

In dissecting a fractured limb which has been removed during the process of union by callus, it will be found that the new bone is uniformly attached to the sound part of the old, the vessels of the part employed in this process being much increased in size. The newly deposited bone, which in its turn carries on the process, being perforated by numerous and large foramina, for the entrance of corresponding ramifications of arteries, &c. The new formation will be perceived shooting from the opposed ends till these are united ; and the masses in which they are deposited will be direct, and but slightly prominent, or, on the other irregular and unshapely, according as the separated ends are favourably or unfavourably placed. I can conceive it possible, and in fact have frequently found, new bone connected with the soft parts ; but this was the product of a splinter, which had still retained its vitality, and whose vessels had formed a contribution to the general action.

Great powers not only in the production, but also in the removal of bone, have been long allowed to the periosteum. No one, I will venture to say, has as yet detected this membrane in either of these acts. New bone has not been found adhering to the periosteum, either in fractures or necrosis ; far less has a complete substitute, composed of the ossified periosteum, been ever discovered incasing a sequestrum. In every instance, the new formation is deposited in nodules adhering firmly to the old bone, and, as remarked above, freely perforated by nutritious arteries. The vessels of the bone no doubt are ramified on the external and internal periosteum ; but it is only after their entrance into the perforations, that they become disposed to pour out ossific matter. In the healthy state of the system, the vessels of each part repair any breach by a substance nearly resembling itself. Skin is united to skin, muscle to muscle, and by substances somewhat similar. We might, therefore, with equal propriety and truth attribute the reparation of skin to the

subjacent muscle, or, vice versa, as of bone to periosteum, or periosteum to bone.

From various causes, bones are liable to attacks of inflammation; and the terminations are, as in the soft and more sensible parts, in resolution, suppuration, or death. Effusion, by which the vessels so readily relieve themselves in softer textures, cannot take place here so easily; or to such an extent, as to prove beneficial; and it is with difficulty that such deep-seated actions can be controlled by the common remedies. The consequence is, that resolution is comparatively rare; whilst suppuration on the surface, or in the centre of the bones, and death, partial or total, are the more frequent results of injury or incited vascular action, however induced. Suppuration in the substance of bones is necessarily attended with loss of substance; collections of matter, external to bones, if allowed to press long on their surface, or if firmly bound down by strong and unyielding sheaths, will, after a longer or shorter time, produce a breach of continuity in them, by causing absorption of their outer lamella, and the subjacent cancellated texture, the pressure of aneurismal or other tumours, have the same effect. Such losses of substance are, in general, speedily repaired, as I have stated above, so soon as the cause is removed, by the active effusion of new matter from the proper vessels of the bone. The impression, that part of a bone has been absorbed by the pressure of an aneurism, ought not to induce the surgeon to prefer the amputation of the limb to the ligature of the artery.* The bones composing the larger joints, even after great loss of substance, are frequently found firmly united by new bony matter; in other words, ankylosed—for instance, the femur and os innominatum, after the removal of the head and neck of the femur, and destruction of the cotyloid cavity, or the knee or elbow-joints, after long-continued disease. Cases, however, are by no means uncommon, in which the loss of substance is of a most intractable nature, and frequently incurable.

Such affections of the bones, resembling specific incurable ulcers in the soft parts, may proceed either from the debility of the patient's constitution, or from the diminished vitality of the

* By the ligature of the femoral, which appears to me the more advisable as well as the less hazardous proceeding of the two in such circumstances, I have been so fortunate as to bring to a happy termination a case of popliteal aneurism, where there was every reason to believe that absorption of the bone, to a great extent, had taken place, and exceeding, by several inches, one I had seen amputated. The tumour and limb in the one I allude to, in which the femoral artery was tied, measured nearly two feet in circumference.

Mr. Liston on the Treatment of Caries.

surrounding and affected parts, occasioned by long-continued or violent action. Whatever the cause may be, whether constitutional or not, certain it is, that some ulcerations in bones heal kindly enough, whilst others, apparently in the same circumstances, have no such disposition. To such ulcers in bones as resist the natural efforts of the constitution towards their cure, and require the active interference of art, I would propose to limit the term Caries.

Before taking notice of the circumstances and symptoms attendant on this affection, it may be remarked, that the comparative frequency of the one or other of the terminations of inflammation, suppuration and its consequences, or death, depends much on the kind of bone implicated. The flat bones, the shafts of the long bones, and the outer lamella of all bones, as possessing a more dense texture, containing a greater proportion of earthy matter, and being less freely supplied with blood-vessels and nerves, possess less power of resistance ; and necrosis, or death of the affected part, is the common consequence of injury or of vascular action, increased beyond a certain point. Of this disease hereafter. That on which it is now my intention to make some remarks, takes place almost uniformly in the heads of long bones, or in the similar texture of short bones. They have greater powers of life ; and their structure, being loose and spongy, effusion and abscess easily take place in them ; or otherwise, their outer lamella, being very thin, readily yields to the pressure of matter from without, and admits it into their internal cells.

Though caries is the disease to which the soft and spongy bones are most liable, it does not follow that other diseases may not now and then occur in them. Affections sufficiently violent, and injuries sufficiently severe to occasion death, will sometimes happen to such textures. I have witnessed many examples in point ; and the preparations illustrative of this fact are pretty numerous in our collection. One very remarkable, is from a young man, Cameron, who was struck by a musket ball on the head of the tibia, at one of the engagements in the Peninsula. The wound never completely healed, though at some times the discharge almost dried up, and his health recruited a little. He applied to a public hospital for relief, and was there under treatment for a long time ; that is to say, he was kept on low diet, and the wound poulticed. He had an attack of erysipelas, from which his worn-out constitution did not recover. On examination after death, a cloaca was found, leading to a sequestrum in the head of the bone, of about an inch long, and half an inch thick, beautifully macerated in the purulent discharge.

It resembles a piece of loaf-sugar which has been dipped in hot water, and then dried. Considerable effusion of new bony matter had taken place on the fore part of the bone, over the cavity containing the dead part, showing how willing Nature was to supply the deficiency. The two diseases of Caries and Necrosis are frequently complicated with one another in the same part; that is to say, the parieties surrounding a sequestrum may become indisposed to heal; and though the dead part be cast out by Nature, or removed by the surgeon, still a cure cannot be obtained without the active interference of art.

The case of a boy, Kennedy, æt. 15, illustrates this proposition in a remarkable manner. He was, without any assignable cause, attacked by violent pain in the upper part of the tibia, about four years before his application to me. An abscess formed and discharged. He was admitted into the Royal Infirmary, when a sequestrum was removed. At the end of five weeks, he was dismissed, and again taken in for eight days, on account of the continuance of the discharge. On his application to me, it was found that the probe led to a considerable cavity in the bone. The opening was enlarged by the application of a large trephine; and after the removal of the diseased cancellated texture, by the scoop and gouge, the cautery was freely employed. In a few weeks, a firm and permanent cicatrization was brought about, and the boy remains free of disease.

It was formerly remarked, that where the action of the vessels is incited in bones, they become highly sensible. Hence, in the commencement of this disease, which is attended with more or less inflammatory action, the patient generally suffers most excruciating agony—so great in general as to prevent him, perhaps for weeks, from enjoying the least repose. The affected part is generally swollen considerably; but the enlargement is seldom so general or great as in the diseased state of the ligaments and other apparatus of a joint, generally known by the name of White Swelling. White swelling, however, may now and then be the precursor of caries; or, in other words, a disease commencing in the ligaments, bursæ, &c., occasioning great enlargement, may extend to the bone; and breach of continuity, terminating in unhealthy ulceration, may ultimately be the consequence. But when the bone is primarily affected, there is seldom much thickening of the surrounding parts; and the swelling occasioned by the effusion of new bone is, as might be anticipated, much more unyielding than that arising from thickened tendons, ligaments, &c.

In the disease in question, the affected portion of bone would appear to be, at first, in a half dead state, neither possessing vi-

tality enough to enable it, by an effort, to repair the breach, nor dead enough to be thrown off by the surrounding sound parts. When the parietes of the breach have remained a considerable time in this inactive state, the surrounding vessels become increased in activity, and the surface of the bone in the vicinity is studded with nodules of new bony matter. This is not in general limited to the affected bone, if one only is the seat of the disease; but frequently extends to those articulated with it.—The soft parts are commonly more or less thickened, and rendered exceedingly dense, by the effusion of lymph into the cellular texture; and so great is the thickening in some cases, that the knife is resisted as by cartilage. Such a state of the parts, renders the securing of vessels, after operation upon them, a most difficult task. This I have experienced in several cases. When the bleeding is from small vessels, pressure is here more effectual perhaps, than in the natural state of the parts; but bleeding from a large vessel is most obstinate and troublesome,—the vessel cannot retract, nor indeed can any of the immediate natural processes for the stoppage of hemorrhage take place. It is equally impossible for the surgeon to draw an artery out and tie it in such a state of parts; the only remaining plan of procedure is by the needle and ligature.

I was under the necessity of securing the anterior tibial in the case of the patient B——,* some days after the operation, in this way; and after the removal of the metacarpal bone of the great toe from a man of the name of Cross, great difficulty was experienced in arresting the hemorrhage;—the division of the bone was made with the cutting forceps. To expose the bleeding vessel completely, it became necessary, after all, to turn out the articulating head of the bone. Still it was impossible to pull out the bleeding extremity. The needle and ligature were had recourse to. Notwithstanding this, secondary bleeding to an alarming extent occurred, and was at last commanded by accurately applied pressure.

The discharge which proceeds from such a disease, and which is found to be poured through one or more openings, is frequently of the most fetid kind, and in great profusion—the skin is excoriated, and the probe blackened by its acrimonious and fetid properties. The surrounding bones being deprived so far of their nourishment, become so soft as to be easily perforated by a blunt instrument, or cut by a knife—and, possessing little

* This case is related fully in the subsequent part of the paper.

earthy matter, when separated by maceration from the surrounding parts, they become exceedingly light.

The softening of the bones is frequently not limited to those in the vicinity, but pervades more or less the whole system, and indeed exists in many instances, independently of any active disease. This state depends on the nature of the constitution, and must be attended to accordingly. Carious ulceration is generally confined to one or two bones, at other times it involves a whole chain of them. It may be limited to a part of one bone only in a complicated joint, or may embrace the whole of it. This will depend on the severity and extent of the primary action, or on the length of time and violence with which pressure has been allowed to exist, whether from the nature of the superincumbent texture, or the carelessness (or whatever it may be called) of the surgeon.*

The destruction of the constitution attendant on this disease is at first very great,—the sympathetic fever is followed by a no less violent state of hectic, under which and the other attendant discharge, many patients sink. The general affection, of course, in some degree keeps pace with the local one in violence and duration. The irritation is in some cases so violent as to destroy the patient in a very few weeks or months; but cases will

* The propriety of evacuating matter, when collected upon bones, in their vicinity, or in their substance cannot be too much insisted upon.—Many such collections arise from a primary affection of the bone, whilst others, commencing in the soft parts, will frequently find their way more deeply, owing to the unyielding nature of the superincumbent textures. In the first case, if left to itself, the disease slight, and perhaps limited to a very small portion of one bone, may destroy the whole of that, and attack those in its vicinity. Again, a collection not originally arising from disease in a bone, will now and then deprive a bone of its periosteum, and induce necrosis or exfoliation (degrees of the same affection,) or may give rise to all the mischief in a joint as above described.

Equally, if not more dreadful effects arise from collections in the softer textures. Important cavities or canals are also apt to suffer from neglected abscesses in their vicinity. Some practitioners, however, are apt to look upon indolent tumours and abscesses as quite harmless, and advise that they be left to Nature.

In confirmation of what is stated above, I may merely allude to the case of a young girl who died from injury of the head. The existence of matter under the cranium, was clearly enough indicated by the general and local symptoms. The operation was however delayed. On dissection, the abscess was found to have made its way into the longitudinal sinus, and had filled the whole venous canals within the head.

I may also notice instances of matter confined in the neck, making its way into the mediastinum, trachea and œsophagus, several of which I have witnessed. The occurrence of disease in bones from this cause, must be sufficiently familiar to every one who has enjoyed even limited opportunities of observations.

sometimes present themselves, in which a constitution by no means strong, will be enabled to bear up for a long period of years under pretty extensive disease of a bone. By this it is not to be understood, that, during all this period, the patients suffer from hectic. The disease comes into a quiet state, and the exhausted constitution is allowed time to recruit, so as to meet any new attack of irritation and fever.

Such, in general, is the course of the disease ; the giving way of the skin is attended with discharge more or less profuse, and with hectic fever more or less violent, according to circumstances. These, as noticed formerly, either destroy the patient, or after a time subside. The discharge will sometimes appear almost entirely to dry up, and some of the openings may even close, allowing the constitution to rally a little. The temporary cicatrices of sores leading to diseased bone, have a very different appearance indeed from the sound scar after their removal. The former is bluish, soft, and elevated above, and on a level with the neighbouring parts, and moveable over the bone ; the latter are depressed, white, and firmly adherent to the bone.

The paroxysms of pain and inflammation in the diseased part occasion fresh attacks of constitutional derangement. This goes on till the patient's health and strength are exhausted, and he is then either destroyed entirely, or is relieved by the spontaneous or artificial removal of the offending part. A natural cure can take place only by the complete death of the affected part, and its consequent separation from the system.* This may arise from an attack of inflammation greater than the worn-out parts are able to withstand ; and if the whole disease is thus destroyed, it is immediately thrown off, and granulations speedily springing up from the surface repair the breach. We frequently find small pieces of bone lying loose in a carious cavity, and such are now and then discharged during the progress of the disease. These are in general separated by the rapid progress of ulceration ; but the ejection of many such is not sufficient to make any favourable change in the disease. The whole unhealthy

* A natural cure of caries, though very rare, is certainly not absolutely impossible. A bone, or part of a bone, affected by this disease, and to which alone the mischief is confined, may, from some circumstance, become necrosed and separated from the system. This occurrence, however, is so extremely rare, that the surgeon is not justified in encouraging the patient to hope it. The disease, when fairly established, will endure for a series of years, at one time becoming very active, and again subsiding into a quiet state. The patient's health, notwithstanding, gradually declines, and, in many instances, so much so as to preclude any attempt at saving the extremity in which the disease may be seated.

part must become necrosed, and be thrown out before the discharge, and consequent constitutional irritation, can be expected to subside. As Nature does so little in this disease, we have now to consider what prospect of relief our art holds out.

From what has been said above, it would appear, that to trust to Nature for a cure in this diseased process, is utterly fruitless and unprofitable ; nor can the application of external remedies, as ointments, poultices, &c. if they do no harm, be reasonably expected to do much good. We must therefore adopt some means of getting quit of the mischief, and that before it has undermined the constitution, and ruined the patient's health. The first, or inflammatory stage of the disease, and which, as has been remarked, is attended with the most excruciating pain, must be counteracted by the local abstraction of blood (though this remedy cannot with safety be carried to a great extent,) followed by counter-irritants, issues, sinapisms, blisters, or ointment of the tartrate of antimony, used so as to bring out a copious eruption of pustules. These three last I would prefer in mild cases. From the employment of all of them, I have witnessed the most happy effects. The tartrate of antimony is perhaps to be preferred, as being quite manageable, so that as much or as little irritation as is desired may be produced without difficulty, and in a short time. I am in the habit of ordering it daily, and observing its operation both in affections of joints, and in fixed deep-seated pains, with the most marked and decided success. The most effectual remedy, however, and the one from which most relief is to be derived, both immediately and permanently, is the application of the actual cautery, in the form of moxa, to the integuments over the diseased part, for the purpose of producing a pretty deep eschar. In all deep-seated pains of the joints, this remedy affords the most speedy and complete relief, at the expense of but a trifling pain of no long duration. The pain does not appear to be greater than that arising from the formation of an eschar by potass, or any other of the potential cauteries, and lasts only during the time of the application, whilst the violent pain does not subside perhaps for twelve hours after the employment of the potass. The pain of the moxa, I repeat, is only instantaneous ; its beneficial effects are both speedy and lasting ; the formation of an eschar by the potential cautery produces severe pain of long duration, and its use generally leads to disappointment.

In a disease of some standing, or in a large joint, the application of one moxa will prove insufficient ; and it may become necessary to apply several around the pained part. If it is desirable that the eschar should be deep, they must be repeated in

the same place. The good effect is generally experienced before the separation of the eschar ; and, upon its falling off, the healing of the sore should be encouraged. I never could observe the slightest benefit from maintaining a discharge from an issue. However made, the patient feels no relief after the discharge is established ; and, if profuse, it must be a mean of destroying his health. Instead of encouraging discharge, it will be found more advantageous to have recourse to fresh applications. During the adhesion of the eschar, the best application is a common poultice, which, on the separation of the dead part, may be exchanged for any simple ointment. The sores, following the use of the moxa, are generally very tedious in healing.—This, perhaps, may be attributed to the vitality of the surrounding parts being, in a measure, diminished by the application.

In some instances of deep-seated pain in bones, I have applied the cautery with advantage, so as to produce an eschar : the moxa is, however, a preferable mode of effecting this purpose. The powerful effect of this remedy is well exemplified in the following, out of many similar cases.

A man named Flanigan applied to me on account of most violent pain in his back, and stretching down his thighs. He had suffered under the disease for months, and had been very little, if at all, relieved by blisters, sudorifics, and other local and general remedies, which had been judiciously put in practice. He stated his complaints to have arisen, soon after he had been invalidated, in consequence of a severe injury received on the abdomen from falling on a stake. He had been a very active, muscular man, but, from continual suffering, had become emaciated to an extraordinary degree. He mentioned, that, within a very short time, he had lost three or four stone in weight.—The pains were so violent as to prevent him from ever lying down in bed ; and he was generally obliged to sit up, with his knees drawn towards the abdomen. The pain was distinctly pointed out as originating at the top of the sacrum ; but no change could be perceived externally, in the form of the parts. The moxa was applied over the part pointed out by the patient, as being the seat of the greatest suffering ; and, in a very few days he returned, to report himself perfectly cured. Long before the separation of the eschar, he had resumed his employment—a very laborious one ; and, with the exception of a slight threatening of a return of his former complaints, which occurred a few months afterwards, and which disappeared without further treatment, I have every reason to believe that the patient continues well.

I might relate many cases in which I have little doubt exten-

sive disease in the joints was prevented by this application. When the disease which we have named Caries is fairly established, and the integuments have given way, the most rational, and, as we shall see, the most successful proceeding, is that pointed out by Nature. To accomplish our end, viz. the death of the bone, recourse must be had to different means, according to the particular circumstances of the case. We shall be the more inclined to make attempts to save even large joints, when we consider the small extent occupied by the disease in some annexed cases and plates, and the great efforts made by Nature : in many, she appears, in fact, to wait but for the separation of the sickly part, by accident or the interference of art. We shall be further encouraged by the success following the attempts in the cases to be related by and bye.

We may divide the means to be employed into those in which the disease, or part of it, is immediately removed, and those which alter the circumstances, so that it shall be thrown off by the constitution. The first indication to be accomplished by the proper use of trephines, perforators, gouges, graters, scoops, saws, and forceps of different kinds, for dividing or extracting ; the second by cauteries, actual or potential. In general, a combination of both is required.

In caries of the long bones, it becomes in general necessary to enlarge the opening through the outer lamella, by the application of the trephine, and, perhaps, by the use of a small saw or cutting forceps, so as to connect the different perforations, and thus obtain access to the diseased cancelli. The scoop or graver will answer well for the rest of the work.

Here it is difficult to ascertain, amidst the blood effused, what is sound and what diseased ; and, in order to make sure, it is prudent in most instances to apply the actual cautery very freely to the exposed surface. This will by and by be thrown off, and granulations of a healthy kind fill up the breach. None of the potential cauteries are much to be trusted to ; their application is equally if not more painful, and the continuance of the pain longer.

It is seldom, indeed, that any considerable exfoliation follows the use of the most active, whereas this is the inevitable consequence of the proper use of the hot iron. The application of the latter is terrible in appearance, but not in reality ; and it has been almost entirely abandoned in this country—in so much indeed, that but very few surgeons have ever applied it, or seen it applied. The sooner it is reinstated in its former station among the surgical means of cure, the better, as, till then, many other diseases besides caries must baffle entirely every effort of

the surgeon. Better that a patient should suffer a very little pain for a few seconds, than remain a miserable object for life (which, if the disease is extensive, will not be of long continuance,) or submit to a mutilation. It will be absolutely necessary to keep the wound open, by proper dressings, until every part of the parietes granulate. The exfoliation will be accelerated, at all events the discharge, if offensive, in some measure corrected by the use of spirituous applications,—tinct. myrrh. opium, aloes, &c. or any of these combined. After the cavity becomes healthy, it would be proper to fill it very lightly with lint, so as to support the granulations.

The red precipitate of mercury, the nitrate of mercury (*eau mercurielle* of the old surgeons,) lunar caustic or potass, may be had recourse to, if the potential cautery, for any reason, is preferred. The lunar caustic and red precipitate are more manageable than the *eau mercurielle*, or than any of the acids; but any of them will prove but of little use in comparison to the actual cautery. If the actual cautery is objected to, the surgeon is still bound to do all in his power towards the extirpation of the disease, seeing that Nature can with great difficulty bring it to a happy termination, unless when well assisted.

Some encouragement is held out by the first cases I operated upon, which, in the end, turned out well, though I am now convinced, that, had the actual cautery been employed, a cure would have been effected in much less than half the time, and with a great deal less suffering to the patients.

The operations on the short bones of the tarsus and carpus, are not to be undertaken but by those that are intimately acquainted with their articulations and connections, shape and size—the ligaments by which they are bound together—the direction of their surfaces—the exact point at which the tendons cross or are inserted into them—and, lastly, the precise situation of the blood vessels and nerves. In short, the person who operates in such cases should be an *anatomist*, otherwise the most fatal mistakes may arise.

When the disease is seated in one of the tarsal or carpal bones, and entirely limited to that one, its simple removal will be sufficient. If, however, more than one (or, in some instances, two) is affected, the operation becomes more complicated and difficult for the surgeon, and more painful for the patient. Supposing (as often happens) that one of the tarsal or carpal bones is completely destroyed, and that the surfaces of those articulated with it are also more or less affected, their cartilages and outer lamella being absorbed, it is, in such circumstances, not sufficient or safe merely to remove the loosely-attached portions of

the one primarily affected. The diseased surfaces or substance (if the disease extends deeply) of the surrounding ones must also be cut out, and the operation finished, for the same reasons as formerly given in speaking of caries of the long bones, by the free application of the cautery.

In caries of the distal range of bones, either in the carpus or tarsus, the ends of those supported by them are in general involved; and these, of course, must be treated after the same fashion. If one of them is diseased, with the head of the metacarpal or metatarsal bone connected with it,—and if the disease has not extended further, the removal will be sufficient, and can be easily accomplished.

In short, if the whole disease can be extirpated, leaving the surfaces of the surrounding bones covered by cartilage, the use of the cautery is not at all required, and would be productive of great harm, not to speak of the cruelty of the unnecessary application. But wherever it is impossible to avoid encroaching on the cancellated texture of a bone (such as the os calcis,) which it would be unsafe or imprudent to take away entirely, the use of the cautery is then indispensable. These rules of practice are fully illustrated in some of the annexed cases.

It has been often remarked, that, after the removal of the hectic cause—say a diseased limb or joint, by amputation—that the patient was immediately relieved of all complaints, and recovered rapidly. The same may be said of the extirpation of carious bones.

The symptoms disappear speedily, and the recovery is equally rapid and much more complete; in so much, that, in the one case, the patient loses his limb—in the other, he keeps it on, and is neither deformed nor lame. This could scarcely be expected from reasoning on the subject, especially on the operations of large joints, when we consider the severe and highly dangerous constitutional derangement following the slightest wound of such in the healthy state. But it would appear, that diseased joints, with or without caries, do not take on the same actions; nor does the interference with such give rise to the same disturbance in the system, as an operation on a sound joint would produce.

The instruments by which the operations are to be performed must be well chosen for the purpose, and of sufficient strength. The knife with which the incisions are to be made on and amongst the bones, requires to have a strong sharp point and edge, with a thick back and firm handle. A scoop, graver, or gouge, and strong piers, with some pairs of cutting forceps, will complete the apparatus, not forgetting the cauteries, in case of need.

The bone forceps, the cutting edge of which is in a line with the handles, such as I have used for some years in these operations, as well as in amputation, will be found excessively useful in all cases, but more especially where the metacarpal or metatarsal bones require to be removed in part.

Forceps, somewhat resembling those I make use of, were employed by some old surgeons for dividing cartilage, a plate of such is given in the *Armamentarium Chirurgicum* of Scultetus. They were also used for removing splinters of bone after amputations, &c. ; their use in cases of amputations, and in such operations as I am about to describe, I believe to be new.

Be that as it may, I have found them of great service ; and my wish is, that they may prove equally serviceable to others.

It may be thought that I should say something of saws in such operations ; but I never found them of the least use. On the contrary, I have witnessed several attempts on the metatarsal bones with the chain-saw. It either broke or got so wedged, that great difficulty was experienced in getting it disengaged by the use of some other contrivance, so as to put an end to the operation. The same has been the result in any trials with that instrument which I have made on the dead body.

I may perhaps have seen bad specimens of the instrument ; it may perhaps, if well constructed, be found useful in dividing large bones ; but the difficulty of conveying it below them must always prove an insuperable objection to its employment.

In the use of the half-headed trephine, the bone must be denuded much higher than where the division is to be made, so that the centre pin may be fixed,—the bad consequences of which proceeding I need not dilate upon ; for if it is applied to that part which is to be removed, the instrument cannot be firmly fixed ; and the divided end left attached to the system, will present a concave surface, with two projecting points. Another disadvantage is, that, at every turn, the centre-pin must be shifted, which, to say nothing of the delay, and increase of suffering to the patient, must give the surgeon abundance of trouble and annoyance, unless indeed we follow the plan of Mr. Wardrop (the inventor of the instrument,) who told me lately, on making these objections to him, that a sharp-pointed centre-pin must be used, which is to be drilled through the bone, as the division takes place. This may answer in the dead body well enough, on which alone it has, I suspect, been used.

The annular saw, so far as I can see, requires most extensive division of the integuments, and is, from its extreme complication, too apt to go wrong in working it.

An account of a new rotation-saw, as it is called, has been

lately published by Professor Thal of Copenhagen. It is said to do its work well, and with rapidity. In a public trial on the dead body, amongst others, the metacarpal bone of the middle finger was divided in eighteen seconds.

With the forceps, I may merely mention that the whole operation of removing any of them (even the metatarsal bone of the great toe, which is of double the thickness of the bone supporting the middle finger,) incisions and divisions of the bone never occupies so much as fifteen seconds; and some of these operations may be performed in less than ten seconds.

It has been objected to my mode of dividing the bones by the forceps in the smaller amputations, that splinterings will take place, and the cure be thus retarded. This never does occur; the smooth side of the forceps is applied towards the body—the end left is as smooth as if divided by the finest saw, and appears to me to be in a more favourable state for healing.

The fact that it does heal as readily and speedily, if not more so than if the saw had been employed, must set the question at rest. The end removed is sometimes a little ragged; but this is, of course, of no consequence.

In all young patients under six or seven years, the bones of the thigh, arm, leg, and fore-arm, may be divided with perfect ease, by means of large cutting plyers, without the least splintering, and, in adults, all those of the metatarsus and metacarpus. Amputation of these latter bones has been rendered easy beyond all conception by the use of the forceps. The division of the sole of the foot, or palm of the hand, can be readily dispensed with, when the bones are thus divided. This is desirable in many instances, though perhaps the cure is not so rapid as when a free passage is allowed for the matter in both directions.

In removing the fore or little fingers, great or little toes, a flap can be saved from their sides; and it may be made either by pushing the knife through and bringing it out, or by cutting from without. The intermediate fingers or toes are removed by cutting on the back, from the point at which the division of the bone is to be made on each side, making the incisions meet near the distal end of the metacarpal or metatarsal bone on the palm or sole; the bone is then divided and turned out, leaving the soft parts untouched below.

Or a long sharp-pointed bistoury is run from the junction of the finger, so high as is thought proper on one side; it is then entered on the other side of the bone, and cut out. On securing the vessels, the edges of the wound are approximated by a firm bandage. So simple and expeditious withal is this mode of removing these bones, that the amputation of the largest or

most difficult may be easily effected in from ten to fifteen seconds.

But a few days ago, the extirpation of a great toe and metatarsal bone occupied me fourteen seconds, though, from its great strength, I was under the necessity of changing the forceps I first took up, for a stronger pair. I mention this fact, to show the superior quickness with which a surgeon is enabled to put an operation out of hands (which, whatever it may be to the surgeon, is a matter of no small moment to the patient,) not that I am by any means an advocate for performing operations by the stop-watch; but, consistently with safety to the patient, the more celerity that is employed, the better. No man will willingly submit to a quarter or half hour's torture, if he can have the same business done, in an equally good or better style, in a quarter or half a minute.

I may, in conclusion, mention, in regard to the forceps, that they have met with the approbation of many good surgeons, and, in particular, of one very great one, M. Baron Dupuytren, who has not only approved highly of them, but also used them publicly. For the details of the practice, in particular circumstances, I may refer to the cases. It must, of course, be modified by the state and extent of the parts involved.

The extent of the disease, the size of the joint implicated, and the state of the patient's health, may render the practice of removing the diseased parts only, impossible or imprudent; and for such reasons only can the operation of amputation be with propriety had recourse to.

III.

Lectures on the Operative Surgery of the Eye, &c. By G. J. GUTHRIE, Deputy-Inspector of Hospitals, &c. &c.

(From Anderson's Quarterly Journal.)

The general diffusion of knowledge concerning the diseases of the eye, among the members of our profession, has become so manifest, that it is unnecessary for us to touch upon the subject, farther than to allude to the advantages which the science has itself received from this occurrence. The most careless observer cannot fail to remark, that during the few years in which this branch has been cultivated by men of liberal education and enlarged minds, more has been done for its advancement, than during centuries in which it was confined to the hands of a particular class, and separated by disingenuous arts and un-

founded prejudices, from its natural connexion with the principles on which the other parts of our art are founded.

Mr. Guthrie's work appears well calculated still farther to favour the progress of the impulse already given, and to promote that general information equally desirable for the profession and the public. We cannot pretend to give a complete view of all the valuable matter it contains, but we purpose, as far as our limits and abilities permit, to offer an abstract of the principles inculcated, and of the most important practical points.

On the Inversion of the Eyelids.—This disease is known by different names, as Entropium, Trichiasis, Distichiasis, &c. It has been supposed to depend—1st, On a false or irregular direction of the eye-lashes; 2d, On an augmented growth of them, forming, as was supposed, a double or treble row; 3d, On a vicious inclination of the edge of the eyelid, accompanied by either of the previous states of derangement of the eyelids. It is admitted that the natural direction of the eyelashes may be changed, but Scarpa and Boyer, with whom Mr. Guthrie agrees, deny the occurrence of an extraordinary growth, or the formation of a new row of hairs. The symptoms arising from the inversion of a single hair are very distressing, and sometimes give rise to acute inflammation; more frequently, however, when neglected, it becomes the cause of the inversion of the neighbouring cilia, and, by degrees, of the whole eyelid. The causes of inversion of the eyelid are necessarily different in different cases; sometimes a single hair takes a wrong direction after it has attained a certain length, and irritates the eye; ulceration on the edge of the tarsus, or on the conjunctiva lining it, or implicating the roots of any of the hairs, frequently gives rise to partial inversion of the cilia. Mr. Crampton has pointed out the contraction of the angles of the lids as the principal cause of the disease, and has indicated the proper mode of treatment. He demonstrates, that the levator palpebræ superiores was not inserted into the upper margin of the tarsal cartilage, but into the parts connected with it and with the conjunctiva. Mr. Guthrie states, that the inversion of the edge of the lid appears to depend on the contraction of the angles caused by thickening from previous inflammation; on the undue action of the orbicularis muscle, and particularly of the musculus ciliaris, as well as on a vicious curvature of the cartilage. He concludes, from a review of the whole of the facts—

1st, That the derangement of the eyelashes is frequently the

consequence of disease, but seldom or never arises from unnatural formation, or accidental growth of the cilia.

2d, That relaxation of the integuments, or partial paralysis of the levator palpebræ, are not primarily concerned in the formation of entropium, and never alone give rise to it, though, if other derangements take place, they may assist in its more complete formation.

3d, That in a complete inversion of the edge of the tarsus of the upper lip, the swelling of the external parts, and the spasmodic action of the orbicularis muscle, first tend to the formation of the disease, which is completely established by the contraction of the angles of the lids, and the accidental inversion of such hairs as become stiff and matted by the discharge from the meibomian glands and conjunctiva.

4th, That the change in the curvature of the lid takes place principally from the contraction of the angles whilst under the influence of the orbicularis, and not from the contraction of the conjunctiva, corresponding to the superior broad ligament, which supports the tarsus, and maintains the shape of the upper eyelid.

Little variation has taken place in the modes of treatment recommended for the cure of this disease from the time of Hippocrates, until the publication of Mr. Crampton's Essay, in 1806. The most common operation is that by which a fold of skin was destroyed or removed by different means, or by the knife, suture, and caustics of various kinds, particularly potassa fusa, and sulphuric acid; the latter first recommended by Helling, a German, in 1814, and extensively employed by Quadri and others. Experience having fully proved the inadequacy of these measures to relieve the symptoms in severe cases, Mr. Saunders was led to propose the removal of the edge of the eyelid, considering the inconvenience and deformity thus produced, as preferable to the continuance of the disease. This operation has been subsequently adopted by Dr. Jaeger, son-in-law to Beer, which may be considered as a tacit admission that the Germans are unacquainted with any better plan of cure.

"In cases of chronic inflammation," says Mr. Guthrie, "where there is a commencing, but incomplete general inversion of the cilia, the cure of the inflammation will be sufficient to restore the conjunctiva to its natural state, and the cilia to their original direction, without any especial means being employed for the cure of the commencing inversion: when this proves insufficient, he recommends the use of the sulphuric acid, according to the mode of Helling and Quadri, which is the following:—a small quantity of concentrated sulphuric acid is to be ap-

plied by means of a smooth piece of wood to the centre of the affected part of the lid, and rubbed along on an oval space, a little extending in length the part on which the inverted hairs are situated, and from three to six lines wide, according to the inveteracy of the disease; after the acid has been applied about ten seconds, the part is to be wiped dry, in order to prevent its passage into the eye. The application of the acid is then to be repeated, taking care that it may approach the edge of the eyelid, and touch the parts immediately over the inverted eyelashes; it is to be repeated a third or a fourth time, until the contraction of the parts draws the hairs to their natural situation, in which they are retained by the contraction of the cicatrix, remaining after the separation of the eschar. In inveterate cases, we have already said, that this operation was inadequate to effect a cure, and in such Mr. Guthrie recommends the operation proposed by Mr. Crampton, which he considers as equal to the cure of the worst of cases. In order to perform it, the head being properly supported, the patient is desired to refrain from making any effort, and the surgeon is to wait until the lids are quiescent. He is then to introduce a narrow knife, or one blade of a blunt pointed scissors, close to the external angle, and to make a perpendicular incision, from a quarter to a half inch long, or sufficiently so, to render the eyelid quite free. Another incision is to be made in a similar way at the internal angle, but this should not include the punctum lachrymale. The length to which these perpendicular incisions should extend, must be decided on by the appearance of the part; they must be continued, if necessary, until that part of the eyelid containing the tarsal cartilage is free, and evidently not acted upon by the fibres of the orbicularis muscle. The part between the incisions is now to be everted and retained by the fore finger of the operator's left hand against the brow of the patient, and any remaining lateral attachments confining it to be divided. On letting the eyelid fall on the eye the edge of the tarsus and the hairs will frequently appear in their natural position, but if the tarsal cartilage has become altered in its curvature, this will be immediately perceived. When this is the case, the cartilage is to be divided exactly at the place where it is bent, in a direction at a right angle with the perpendicular incision. Though the incision thus made scarcely exceeds one, and is never two-eighths of an inch at both extremities, and in general is only necessary at the inner, it enables the surgeon to remove the altered curvature of the part. The operation being thus far accomplished, a fold of skin is to be cut away from the part of the eyelid included between the incisions; three or four

ligatures are then to be introduced, and after having brought the divided parts into contact, to be twisted, and fastened to the forehead by several short strips of sticking plaster. In raising the fold of skin, care should be taken to do it regularly with the fingers, and as close as possible to the edge of the eyelid. It may then be grasped by the forceps of Beer, which have transverse pieces, slightly curved for the purpose, at their extremities, and cut away with a pair of scissors. The ligatures are to be first inserted at each angle, and when the vicious curvature is considerable, Mr. Guthrie recommends, that the inner one should include the outer edge of the margin of the eyelid, which retains the ligature longer than those passed through the skin, and tends to prevent the possibility of a relapse. The ligatures are to be drawn up until the eyelid is completely everted, and then fastened on the forehead. The edges of the incisions are to be touched with the cupri sulphas to prevent union by adhesion; and the parts cleansed and dressed. Great attention must be paid to the subsequent dressing, on which the success of the operation depends. On the following morning the dressings are to be removed, and replaced after the cleansing of the eye. On the second day great attention must be paid, that the ligatures keep the lid sufficiently raised, and if any adhesion has taken place at the angles of the incisions, it must be broken through. On the third day the plasters attaching the ligatures to the forehead will in general require to be exchanged, and the edges of the incisions should be touched with the cupri sulphas, or separated with the probe. The great art of the cure now consists in causing the incisions to be filled up by granulations only, so that the eyelid may be lengthened as much as possible, and which can only be effected by a continuance of the means indicated. In a few days more the ligatures cut their way out, during which period the eyelid is gradually lowered, and by the time the incisions have filled up, it will have resumed its natural situation, and the cure will be completed.

The operation on the under eyelid is analogous to that on the upper, but less severe, as the parts are more simple. It consists in a perpendicular incision made at the outer angle, and carried down so far as will perfectly relieve the inversion. One ligature is then to be inserted at the margin of the lid, and the threads fastened below the jaw by sticking plaster, so as to keep the eyelid everted. The subsequent dressing and treatment is the same as in the upper eyelid. In the worst cases, Mr. Guthrie advises that the inner angle, as well as the outer, should be divided, but without injuring the punctum lachrymale and lateral canal.

Relaxation of the upper lid.—This disease occasionally takes place without inversion or inflammation, but is for the most part symptomatic. It is only to be relieved by an operation, when it is the consequence of relaxation of the integuments from previous distention, and combined with atony of the levator palpebræ, or when it is congenital. The operation consists in the removal of a fold of skin from the eyelid, producing a contraction which counterbalances the previous relaxation. It cannot, however, act on the muscle, so that when it is really affected, the operation only partially succeeds. A greater or less quantity of skin is to be removed according to the portion required to enable the patient to open his eye so as to correspond with the other. The skin to be removed should be from the integuments above the upper edge of the cartilage, or nearer to the eyebrow, and not immediately over the tarsal cartilage as in trichiasis. Mr. Guthrie recommends the use of sutures, and believes that they assist materially in effecting a cure. In the case of paralysis the operation can do no more than raise the eyelid to a certain extent, so as to remove part of the deformity, and should follow rather than precede the treatment required by the general affection.

Eversion of the eyelid, or Ectropium, is rarely met with in the upper lid, and is also less frequent than inversion. Mr. Guthrie distinguishes four forms of the disease by the causes which produce them. 1. As depending on chronic inflammation accompanied by contraction of the integuments of the lid, but without any marked cicatrix. 2. As depending on acute inflammation with relaxation or swelling of the conjunctiva. 3. As depending on the contraction occasioned by a cicatrix on or near the eyelid. 4. As depending on paralysis.—According to the views of Mr. Guthrie, the indications of cure in the first species are, 1. to relieve the contraction of the skin; 2. to restore and retain the lid in its proper situation until the unnatural curvature of the cartilage be overcome, and the chronic inflammation be removed. The skin he supposes to become contracted from the irritation produced by the passage of the tears, and discharge over it from the meibomian glands during the chronic inflammation. The first indication is therefore to be fulfilled by washing the skin with warm water, so as to leave it as clean as possible, by drying it, and anointing it with Ung. Zinci, so as to protect it from the matters usually passing over it. The skin, thus relieved from irritation, becomes softer and more pliant, ceases to contract, and if it does not relax, is at least disposed to yield to mild extension. This, and with it the second indication, is to be effected in the following manner. The lid having been

cleansed to prevent its slipping, the conjunctiva is to be wiped dry and everted as much as possible, so as to show the part where it begins to be reflected over the eyeball. The blunt end of a probe is then to be dipped in some sulphuric acid, and rubbed upon the conjunctiva of the lid, so that every part may be touched by the acid, taking care to avoid the ball of the eye, the punctum lachrymale, caruncle, and semi-lunar fold. The conjunctiva turns white wherever it is touched by the acid, and is afterwards to be washed by a stream of water from a syringe. The acid should be reapplied every fourth day, and when managed in this manner does not cause a slough, but a general contraction of the lid, which, however, is only perceptible after two or three applications by its effect in inverting the lid gradually.

After six or eight applications the cure will be more than half completed, and in most cases of this species the thickening of the conjunctiva will have subsided. When the eyelid is nearly restored to its proper situation, the precaution is to be observed of admitting a longer interval between the applications of the sulphuric acid, for as its effect continues longer than four days, its constant use under these circumstances might produce an inversion of the lid, as sometimes really appears.

In the second species, the eversion consists in a fungous or granulated state of the conjunctiva, with, for the most part, a swelling at the angle where it passes from the lid to the ball of the eye. The indications of cure are, first, to remove the diseased growth of the conjunctiva; secondly, to restore the lid to its natural situation. In order to accomplish the first indication, recourse must be had to the knife, scissors, or such remedies as, acting partly as caustics, partly as stimulants, gradually restore the membrane to its natural state. Experience has shewn that the two former means are objectionable, and established the propriety of using caustics and stimulants. The particular means recommended by Mr. Guthrie are the sulphuric acid applied every four days, and the sulphate of copper every day, or every second day. Mr. Guthrie rejects in this species of the disease, the operation recommended by Sir Wm. Adams, which consists in the excision of the fungous conjunctiva, and in addition, of a triangular portion of the eyelid.

In the third species of eversion, that arising from the contraction of a cicatrix, there are two indications of treatment; first, to remove the cicatrix; and, secondly, to give such a permanent support to the eyelid as will enable it to resist the contractile power of the granulations during the cicatrization of the wound below. The first indication is to be accomplished by a single or double incision from a little below the external to the

internal angle of the eye, following the curve of the eyelid and orbit, as far and as deep as may be found necessary for the removal of the cicatrix, and of the cellular attachments to the bone below. The second indication, Mr. Guthrie thinks, may be best effected by the removal of an angular piece of the lid, as proposed by Sir Wm. Adams, in the second form of the complaint, particularly, if conjoined with the removal of the horizontal fold of conjunctiva. The removal of the angular portion, and the approximation, by suture, of the edges of the wound thus made, shorten the part considerably, and bind it over the eyeball, alter the vicious curvature of the cartilage, and bring it nearly to a straight line, thus opposing a degree of resistance sufficient to prevent any contraction during the healing of the wound left by the separation or removal of the old cicatrix. It is in general most advantageous to remove the angular portion, near to the external angle of the eye, and the quantity to be removed will never exceed a quarter, and seldom an eighth of an inch. The depth of the incision must be proportioned to the width of the ciliary margin, always however, extending beyond the cartilage. Two sutures are to be applied, one close to the margin of the lid, the other near the point of the angle; these may be removed on the third day to prevent the occurrence of ulceration. After the first dressing, the wound made by the detachment or removal of the cicatrix is to be kept open by diluted blistering cerate, and not allowed to close until the granulations have reached the level of the surrounding parts.

Of the fourth species, or that dependent on paralysis, Mr. Guthrie remarks, that it is only to be treated effectually by such general means as relieve the original disease, and that except in young persons this can seldom be effected.

Wounds of the Eyelids, are neither dangerous nor difficult of cure. In consequence of the constant motion of the parts, and the absence of any point of resistance for the application of pressure, penetrating wounds generally require the insertion of one or more sutures to keep the edges exactly in opposition, together with the use of sticking plaster, compress, and bandage.—When the lachrymal canal is divided, Mr. Guthrie doubts the possibility of its union in such a manner as to render it pervious. Contrary to Schmidt, he recommends the use of suture in addition to the means usually employed. In lacerated or incised wounds of the forehead, with extensive solution of continuity, recourse should always be had to one or two stitches, for if the incision be horizontal, and near or upon the eyebrow, as commonly happens, if the suture be neglected, an irregular cicatrix, with a slight falling of the lid, is very apt to ensue. Mr. Guthrie

thinks that a defect or total deprivation of sight rarely takes place from wounds of the forehead, &c., unless the injury immediately affects a branch of a nerve of some size. The wounds or injuries are, for the most part, situated either on the forehead towards the nose, implicating the supra-orbital branch, and the nasal branch of the first part of the fifth pair of nerves, or immediately below the eye, affecting the infra-orbital branch of the second part of the same pair. When the deprivation of sight is instantaneous, Mr. Guthrie suspects, notwithstanding any opinion to the contrary, that the eye itself has suffered from the general concussion. When there is an evident derangement of it, such as an extravasation between any of its tunics, the fact cannot be doubted, and the treatment has no immediate connexion with the wound, although the termination, under any management, will for the most part be fatal to vision. According to his observation, the eye, when amaurotic through injury of the supra-orbitary nerve, often shows little or no derangement of structure, the iris preserves more or less of its natural motions, and the information we acquire, is from the patient's declaration of his loss of sight, which is generally unaccompanied by pain. As to the treatment, if loss of sight immediately follows an injury, an incision should be made down to the bone at the part affected, so as to render it a clean incised wound, which should then be dressed simply, and moderate suppuration encouraged by poultices. If amaurosis should appear after cicatrization has commenced, the same kind of incision should be made on that side of the wound nearest the supra-orbitary foramen. If these should be found of no avail, after a few days, the operation of dividing the nerve, just above where it passes out of the orbit, should be attempted, as a last resource, although it is to be observed that Beer speaks of it as a measure deserving confidence. When the injury has been inflicted upon the eye, and the amaurosis is complete, or commences slowly, or after a few hours begins to subside, the division of the nerve must be useless, and may do harm. Here Mr. Guthrie recommends at first general or local bleeding, purgatives, warm fomentation, &c. At a subsequent period, stimulants, galvanism or electricity may be useful, if a partial restoration of vision be effected. If low, irregular, inflammatory action takes place, he trusts most to local bleeding, blisters or issues placed near the ear, and mercury given in such a manner as to affect the mouth quickly.

Encanthis.—This is by no means an unfrequent affection, and as it may, from its situation, come to produce more serious evils than the original disease, by the simple inflammation of the caruncula implicating the semi-lunar valve on one side, or the la-

chrymal duct on the other, it may be as well to give Mr. Guthrie's mode of treating the disorder.

"The treatment of simple inflammation of the *caruncula lachrymalis* must depend upon the nature of its more obvious cause ; and as it most frequently arises from the presence of an irritating substance, the part itself, as well as the inside of the eyelid, should be carefully examined, and every extraneous substance removed. Dr. Montcath says he has seen it originate twice from a loose eyelash sticking in the superior punctum lachrymale, and irritating the caruncle. When no immediate exciting cause can be discovered, several leeches should be applied to the neighbourhood of the part, and one should certainly be placed on the inside of the lower lid, close to the inflamed caruncle, the bleeding from which should be encouraged by repeated fomentations with warm water ; and I would advise a repetition of the leeches until it is evident that the progress of the inflammation towards suppuration cannot be prevented, when a slight poultice of bread and water should be had recourse to till the abscess is duly formed. I do not coincide in the opinions of foreign writers, who recommend cold water, and cold applications, generally, instead of the more active practice I have advised ; and which may, perhaps, be one cause of the great frequency of the disease abroad, compared with its occurrence in England. When suppuration has unfortunately taken place, the treatment should still be, in the first instance, of the mildest nature, followed up by slight astringents ; but if these should not be sufficient to prevent the appearance of the fringed-like, or fungous growth alluded to, recourse must be had to the *infusum sabinæ*, the *sulphas cupri*, and the *argentum nitratum*. The Germans recommend that they should be sprinkled with a powder composed of *sacchar. alb.* ʒij, *aluminis usti* gr. xv, *zinci sulph.* gr. iv ; but in this I place little comparative confidence.

"When the fringed-like excrescences, or the more solid mulberry growths, are not the sequelæ of abscess, but the products of inflammation, which has not attained to suppuration, they should be at once cut off with the scissors, and the parts from whence they sprung touched a day or two after with the sulphate of copper, by which treatment I have never failed to effect a cure, taking care, however, to continue the latter part of the treatment until every vestige of the disease was removed ; which should also be done in every case, whatever course the complaint may have taken."

"The continental writers are disposed to consider that syphilis has a tendency to induce encanthis to assume a cancerous character ; but as there is no deficiency of the one, whilst the

other is, happily, a rare disease in this country, either in its benign or malignant form, there is reason to believe that those inferences as to the syphilitic virus, are as badly founded in this complaint, as in most others to which the same train of reasoning is applied."

Extraneous Substances in the Eye.—In the following directions for removing accidental extraneous substances from the eye, Mr. Guthrie has not mentioned, what we have often found useful in minor cases, namely, a small cone of writing paper, brought to a point like a camel hair pencil, and moistened, to take off the harsh corners. Sawyers, who frequently get particles of saw-dust into the eye, use the head of a pin to remove them.

"Whenever the admission of an irritating matter between the eyelids is suspected, they should be carefully examined; the lower one offers no difficulty; the upper lid should be everted in the following manner: The patient should be placed on a chair, lower than the surgeon; who taking hold of four or five of the cilia in the centre, and close to the edge of the eyelid, gently draws them downwards and outwards from the ball of the eye. A probe, or other small round or blunt instrument, is then to be placed horizontally across the lid, immediately above the upper edge of the tarsal cartilage, when, by raising the cilia, which have been already grasped by the fore-finger and thumb, the eyelid may be turned out over the probe; the offending matters will be in general found adhering to the everted surface. If the patient be desired to look downwards with the other eye, the whole of the conjunctiva may be readily examined. When surgical aid is not at hand, I have seen ladies in the country slightly raise the eyelid in the same way, and introduce the tip of the tongue underneath it, by which a foreign body may be often brought out. The sensation is peculiar, but not unpleasant."

"When a small fly, or any substance which is not sufficiently pointed to stick into or fasten to the conjunctiva, gets between the lids, there is an action set up in the orbicularis muscle for its removal, which, together with the flow of tears, will frequently be successful, provided the person remain perfectly quiet, and not strain the eye; at the end of a few minutes it will be found at the edge of the lid, and may be readily removed by a bystander."

"There is never any difficulty in discovering a foreign body implanted in the cornea, and it ought always to be removed, in the following manner, as soon as perceived. The operator standing behind the patient, supports his head against his own breast while he elevates the eyelid, and maintains it against the

edge of the orbit, with the fore and middle fingers of the left hand, fixing the eyeball with the extremities of them at the same time. If the eye be very unsteady, an assistant should depress the lower lid, and fix the eye in the same manner from below. Having selected a sharp, firm, cataract needle, he should first touch the cornea with the side of it, to accustom the patient to the sensation it produces, and then introducing the point below the foreign body, raise it from its situation and remove it from the eye. This proceeding will frequently require repetition before it succeeds, and in some instances it has very much the appearance of digging the extraneous substance out of the cornea, in consequence of the tenacity with which it adheres. It is a very common accident with smiths, but seldom gives rise to inconvenience, as I have rarely seen a patient twice after a bit of iron was removed, although it had actually required to be dug out of the cornea. A slight opacity is generally observable afterwards in a certain light; but I have not always been able to discover it unless the speck of iron had remained imbedded in the cornea for several days, and ulceration had commenced. When this is the case, the eye will be very irritable, the patient can scarcely bear to have it examined, and the eyelids seem to close spasmodically: this is best relieved by the removal of the cause, and it is a waste of time to have recourse to poultices or narcotics, as some foreign writers have recommended."

Pterygium.—This disease consists in an alteration of a portion of the conjunctiva, of a triangular or pyramidal shape, the apex of which is turned towards the cornea, whilst the base originates at the circumference of the eye, or more properly at the reflection of the conjunctiva from the lids to the eyeball. Its causes are obscure. Mr. Guthrie contradicts that which Scarpa has assigned, and which is very generally admitted, we mean chronic inflammation of the conjunctiva. From his own experience of that disease, and from the observation of many of his friends, he states that a true pterygium is very rarely the consequence of chronic inflammation, and that an essential difference exists between those nebulæ of the cornea which simulate the appearance of pterygium and the true disease itself. The cure of the well formed pterygium and the true disease itself. The cure of the well formed pterygium should always be accomplished by its removal. When slight, it may sometimes be cured by scarifications and stimulants, but the cure by these means occupies a great deal of time, is often not complete, and the patient is frequently obliged to submit to the operation after a delay of several months. The operation consists in the removal of the diseased part, and is perfect, as far as relates to

the termination of the disease ; but a slight defect remains in the cornea, from the cicatrix which follows the removal of the conjunctiva ; much less however than the extent of surface occupied by the pterygium.

To perform the operation, an assistant is to fix the head of the patient and separate the eyelids. The surgeon should then desire the patient to turn the eye outwards, if the pterygium arises from the inner canthus ; and whilst it is thus stretched, take the opportunity of grasping it between the points of the forceps, about two lines from the cornea, and then raise it from the sclerotica, until he has room to pass an iris or spear-pointed cataract knife under it, and to the inside of the forceps, when it is to be cut through from within outwards. The extremity of the pterygium being still held by the forceps, will allow the operator to cut it off close to the cornea, with the knife or the curved scissors. If any portion of the edge of the pterygium be left, it must be removed with the scissors ; the eye should be washed with warm water until the bleeding ceases, and then covered with a compress and bandage. A process of suppuration and cicatrization succeeds, and continues from two to three weeks ; it requires no assistance from art, and should not be interfered with, unless it appear that some irregularity or elevation is about to take place, where the spot should be lightly touched with sulphate of copper or lunar caustic.

Extirpation of the Eyeball.—To perform this operation, the patient's head being firmly secured, the upper eyelid should be raised by an assistant, whilst the surgeon passes a needle with a ligature through the anterior part of the eye. The lower lid being depressed, the surgeon should cut through the external commissure, down to the edge of the orbit, with a small straight but rather long and pointed scalpel, and then divide the conjunctiva and fat round the eyeball, beginning at the under part, to prevent the blood from above impeding the operation. The eyeball may then be gently drawn outwards, to facilitate the remaining part of the operation, which consists in cutting deeply into the orbit with a pair of scissors curved on the back, or in dividing the same parts with a sharp-pointed narrow knife curved in the same way, introducing it at the temporal angle, and carrying it round the eye until it be released from its attachments. Mr. Travers prefers the knife, but Mr. Guthrie agrees with Beer in recommending the use of the scissors. To prevent the hemorrhage from impeding the operation, an assistant should wash away the blood, by injecting water into the wound from a syringe ; and when the eye is removed, the operator must carefully examine the orbit with his finger, to ascer-

tain that neither the lachrymal gland, nor any diseased parts be left behind. When the bleeding has ceased, the eyelids are to be closed, the division of the external commissure is to be supported with sticking plaster, and the orbit to be covered with a light compress and bandage. When the eyelids are diseased, and the extirpation of the contents of the orbit is still considered advisable, they must also be removed.

Mr. Guthrie has entered largely into the consideration of cataract, treating of the nature, symptoms, causes, diagnosis, and classification of the different forms of this affection. We cannot pretend to follow him through such an extensive subject, and shall confine our endeavours principally to give some idea of the advantages and disadvantages attending the various modes of operating, as applicable to the different species of cataract, premising only his diagnoses of *muscæ volitantes*, and glaucoma.

Muscæ Volitantes.—The frequency of this varied affection, and the alarm which it often creates to the patient, make it of more importance to the practitioner than it usually receives attention.

“By *muscæ volitantes* are understood a variety of appearances moving before the eye, such as small threads or filaments assuming the form of worms, zigzags, or spots of greater or less dimensions, but generally small; little globules or webs, or luminous spots sometimes surrounded by a halo, which always move before the eye, and are never fixed.

“These are most readily seen on raising the eye quickly from the ground towards the sky, when they appear to ascend whilst the eye is in motion, and to descend on its becoming fixed steadily upwards, as if they had been disturbed from, and were returning to their original situation below the axis of vision. Of the different kinds of *muscæ volitantes*, the filamentous particles, turning and twisting in various directions, are the most common; two or three of which are generally more conspicuous than the rest, although accompanied by an infinity of others less distinguishable, intermingled with small globules, which fall like a fine mist when the eye has been gently raised and fixed on a white wall, or on the sky on a clear day. The filamentous particles, being apparently the lightest, descend the last, assuming the appearance of twisted semi-transparent tubes, or worms, spotted in different places.

“In the evening, or by candle light, these spots are scarcely to be observed; they are not very perceptible in a room which is rather dark, are but imperfectly seen when looking at the flame of a candle, and but feebly marked when the eyes are raised to the sky, with the lids shut, on a fine clear day. They

appear much more brilliant on a clear or bright day, when the lids are half closed ; they are also very distinct on a misty day, or when attention is paid to them in a light reflected from water or snow. These spots always appear to sink below the axis of vision by their own weight, when the eye is simply turned upwards ; and this opinion seems to obtain great support from their falling and collecting, as it were, into a focus in the axis of vision, when this point is made the most dependant by bending the head forward and looking on a white and sandy soil."

"Demours has concluded, and with great probability of truth, that these appearances arise from small portions of the humor Morgagni, which, without losing their transparency, have acquired an increase of density, weight, and refractile power.*

"The principal diagnostic mark of these appearances is their mobility, which distinguishes them in a very decided manner from the fixed spots often perceived in the eye, and which depend on opacity of the lens, or a defective state of the retina. *Muscae volitantes* are incurable, seldom pass a certain point, and when the patient is assured of their not proceeding further, appear to be lost sight of, and to give no inconvenience, unless when the attention is directed to them. They are very rarely followed by cataract or amaurosis, and it is a great consolation to the patient to be assured that they are not dangerous."

Glaucoma.—The experienced surgeon can seldom, if ever, mistake glaucoma for cataract ; but it is a very frequent stumbling block to the young practitioner.

"The disease termed Glaucoma consists essentially in an alteration of the component parts of the vitreous humour, accompanied by derangement of structure of the hyaloid membrane, of the retina, and tunica choroidea, the vessels of which are always more or less in a varicose state. The lens is generally at last implicated, although the disease may exist for a considerable time without any visible alteration in it. It is never primarily affected. When the disease is fully formed, so as to be confounded with cataract, or to render a diagnosis necessary in order to prevent a useless and dangerous operation ; the symptoms are as follow : The eye has a general unhealthy appearance, arising from a turbid state of the cornea, which has lost its brilliancy,

* "The existence of the humor Morgagni may be demonstrated in the eye of a sheep, in the following manner ; cut away the cornea, remove the iris to one side, and wipe the capsule of the crystalline dry. Then plunge the point of a lancet into it, and a small drop of this humour will flow out, although it appears to lose its fluidity in some instances after death, and to diminish in quantity as we advance in years."—See Dr. Jacob's opinion in the Quart. Hist.

although in no one part has it become opaque. The sclerotica does not preserve its natural appearance, being either more of a bluish or yellowish colour, whilst several tortuous dark red vessels may be observed, especially on the under and upper part of the eye, which do not run on to the cornea, but penetrate the sclerotica at a distance not exceeding the eighth of an inch from it, and sometimes less, giving rise, when they are numerous, to the appearance of a white ring or circle, situated between them and the cornea. They are varicose vessels, coming from within the eye, and intimately connected with varicosity of the vessels of the choroid coat; and as that state of disease increases, they assume a darker red or blue colour, become larger and more tortuous, often communicating with each other where they penetrate the cornea, forming also a sort of vascular ring, exterior to the bluish-white one already noticed. If the eye is examined by the touch, it will be found rather firmer or harder than natural."

"The iris, if only one eye is affected, differs a little from its natural colour; if formerly blue, it has now become grey; a black iris changes to a dirty brown, but this alteration is of no consequence compared with the state of the pupil, which is dilated, unless inflammation of the iris, which is not an essential characteristic of the disease, has been superadded to it. The dilatation of the pupil is always accompanied by a marked irregularity of its edge, sometimes rendering it angular, whilst it is always perfectly fixed or immoveable, and occasionally drawn to one side, sometimes to both, rendering the pupil oval.* The patient cannot distinguish light from darkness. The diagnosis of a disease that cannot be relieved by operative surgery is now sufficiently established, and no man of the slightest pretension to discrimination ought to be deceived by the appearance of a lenticular opacity behind the iris, which can or does only appear after these previous symptoms have become most marked or apparent. With their commencement a change may be observed behind the iris; the pupil, instead of looking of a brilliant black, looks dull, and the distance to the posterior part of the eye may be estimated, and its concavity observed. This concave appearance soon becomes of a dull yellowish colour, tending to

* "The elongation of the pupil towards the canthi is considered, by the German ophthalmologists, as a very important diagnostic sign of glaucoma; it appears to me to be only an accidental occurrence. In the same manner, they suppose a drawing of the pupil upwards and inwards towards the nose, to be a diagnostic symptom of syphilitic iritis, which is not the case in England. The eyes of the good people of Great Britain and Ireland seem rather repugnant to such minute arrangement."

green, loses the transparency it possessed, becomes turbid, but evidently confined to the back of the eye, so that the thickness of the lens in situ may be accounted for anterior to it. As the disease advances, and the other symptoms become more marked, the greenish yellow colour increases in intensity, and the space occupied by the lens now becomes gradually implicated by it; the lens swells, presses the iris forwards into the anterior chamber, and a cataracta glaucomatosa is completely formed. In many instances the lens never becomes so opaque as to give rise to the appearance of cataract. In some rare cases, this opacity of the lens is so entirely free from any glaucomatous tint, and even possesses so perfect a character of a striated opaque lens, that if the appearance of it alone were to guide the judgment of the surgeon, the disease would be pronounced to be "cataract." The internal symptoms accompanying such cases are, however, so marked as to prevent error, even if the external ones have been mistaken."

Cataract.—For the purposes of regulating the choice of operations for cataract on general principles, Mr. Guthrie arranges cataracts in three classes; the hard, the soft, and the capsular; the hard, admitting only of extraction and displacement; the soft, seldom of extraction or displacement, but usually of division; the capsular, neither of extraction, displacement, nor division, purely considered as such, but by laceration and removal of the opaque body from the axis of vision by different operations; which, although they may partake of the nature of all, are yet not precisely any of them. The operation of extraction is a radical cure of the complaint; it is performed in a very short space of time, and when successful, causes the least disturbance to the internal parts of the eye. In addition to the signs of a hard cataract, this operation is only proper—1. When the eye is of its natural firmness to the touch.—2. When it is not sunk back into the orbit, so as to render the division of the cornea difficult.—3. When, on the other hand, it is not very protuberant; for when the eye is full, the under eyelid is found to press against and raise the edge of the incision.—4. When the eyelids open well, and are not contracted, which contraction may be a natural formation, or the consequence of chronic inflammation.—5. When the lids are free from œdema, the conjunctiva, meibomian glands, and lachrymal passages from irritation or inflammation.—6. When the cilia are straight, and the eyelid perfectly regular; for if there be the slightest inversion, it will irritate, and produce the worst effects.—7. When the cornea is transparent, and has not been lately subject to inflammation.—8. When the anterior chamber is of fair dimensions,

and the iris plane, not convex.—9. When the iris is dilatable. If the pupil do not dilate on the application of belladonna, the cataract is adherent, and this operation should not be attempted. 10. When the pupil is not too much dilated; as this would probably lead to a protrusion of the vitreous humour.—11. When the iris is healthy, and its motions steady; for if the motion be vibratory or tremulous, there is probably either a very dissolved state of the vitreous humour, or an error in diagnosis, the cataract being capsular and not lenticular.—12. When the eye is free from other derangement or disorganization.—13. When the patient is healthy, and not labouring under any constitutional affection.—And 14. When the patient has sufficient control over the eye to keep it steady, and when, above all, it is free from spasmodic or convulsive twitchings.

The operation by displacement may be performed in every case in which extraction ought to be attempted, and can be done in several in which extraction would be improper. The disadvantages by displacement follow the operation, those of extraction rather accompany it. It may be done—1. When the eye does not appear perfectly firm to the touch, and the surgeon is doubtful of its being a fit case for extraction.—2. When the eye is deep in the orbit.—3. When the eye is protuberant, when the lids are contracted or diseased, when there is affection of the lachrymal passages or inversion of the lower eyelid.—4. When the cornea is partially opaque, and not likely to heal if an incision be made into it.—5. When the anterior chamber is nearly abolished from the flattening of the cornea.—6. When the iris is either not sufficiently dilatable, or is too much dilated, or when the iris is in a vibratory state.—7. When there are doubts as to the healthy state of the eye, and the chance of an operation is desired.—8. When the patient is in a doubtful state of health. And lastly, when he has not sufficient control over the eye to keep it steady, or it is subject to spasmodic or convulsive motions. The two most essential objections to this operation are the occurrence and continuance of constant and violent pain after the operation, and the ascension of the lens. In the old operation of depression, the injury occurred in consequence of the lower edge of the lens forcing up the retina and injuring the choroidea, in the conveyance of the whole below the level of the pupil. The operation of Scarpa, and the method by reclin-ation, have for their basis this principle; that the lower edge of the lens must not be forced down so as to injure either the retina or choroidea, but that it must be placed on its flat side, the lower edge turned forwards, and deeply lodged at the same

time in the vitreous humour, where it gives rise to no inconveniences, thus preventing the disadvantages of depression.

The advantages of reclination through the cornea over that through the sclerotica, are supposed to be, that the injury of the cornea is of less importance than when the needle penetrates through the sclerotica, that the whole of the internal parts of the eye are avoided by the anterior operation, and that the operator can see every motion of the needle. The disadvantages are, that the lens cannot be so well nor steadily depressed, that the neck of the needle in doing it is apt to press on the iris, however well dilated the pupil may be; and that from the lens not being so well depressed after it is reclined, it is prone to advance and press on the iris with its lower edge, thereby causing irritation, low inflammation, and closure of the pupil.

Mr. Guthrie thinks, and brings many strong arguments to prove it, that the evils said to arise from penetrating the sclerotica are greatly exaggerated; on the other hand, he asserts that the principal advantage supposed to result from penetrating the cornea, viz. the absence of inflammation, does not compensate for the greater difficulty experienced in sufficiently reclining the lens; and as a subsequent and more dangerous inflammation is likely to arise from this cause, he considers the reclination through the cornea, is not entitled to a preference over reclination through the sclerotica. There can, however, be no comparison between reclination through the cornea and the old operation of depression.

In relation to hard cataract he disposes the operations in the following order, subject to a due consideration of the different states of eye requiring them: 1. Extraction; 2. Reclination through the sclerotica; 3. Reclination through the cornea; abandoning altogether the operations by puncture or division of the lens, and only admitting a compound operation, commencing by displacement, and ending with extraction, when the lens has accidentally fallen into the anterior chamber, during the performance of the previous steps for its reclination.

The operation by division is only applicable to soft cataracts. If the nucleus of a caseous or soft cataract be large and hard, extraction is much more likely to answer than division. The advantages of division are—1. The facility with which the operation is performed.—2. The capability of doing it in all cases in which extraction and displacement are recommended.—3. The avoiding the dangers admitted to attend extraction and displacement.—4. The total removal of the lens and its capsule by absorption. The disadvantages attending it are—1. That it can, or ought to be done only in cases of soft cataract.—2. That it frequently

requires to be repeated, and therefore occupies a longer space of time than the other operations.—3. That if the diagnosis be bad, it must be begun in a case in which it cannot succeed, when recourse must be had to depression or extraction.—4. That it is occasionally attended by severe inflammation, giving rise to amaurosis.—5. That vision is not so perfect as after extraction. Here, as in the case of displacement, Mr. Guthrie thinks the operation through the sclerotica generally preferable to that through the cornea.

In cases of capsular cataract, arising from absorption of the lens, the removal of the capsule is difficult of accomplishment, and is seldom effected by one operation. Hence Mr. Guthrie advises that the capsule be first separated, as much as can conveniently be done from its attachments, by one operation posterior to the iris with the needle, and then extracted at a subsequent period through a small opening in the cornea. When the capsular cataract is secondary, and takes place as a consequence of extraction, it usually adheres to the whole edge of the pupil, and it is for the most part so thin, as to be readily torn by the needle, for which purpose Scarpa's is best. It is to be introduced in the usual manner until it can be seen behind the capsule, when the point is to be turned forwards, and the capsule freely lacerated; any shreds which remain attached to the edge of the pupil may be again torn, if they appear likely to float into the axis of vision; but when the capsule is thin, they shrink up, although the pupil will in general be fixed, from this as well as other adhesions of the iris. The same proceeding may be followed where the capsular cataract has succeeded division, and has not become siliquose, provided the pupil can be largely dilated with belladonna. If this cannot be accomplished in consequence of adhesions formed between the iris and capsule, the point of the curved needle must first be carried to the points of adhesion, in order to separate them previously to lacerating the capsule. When the capsule is not siliquose, yet apparently too much thickened to be easily lacerated, it often yields to the pressure at its ciliary attachment, rather than be cut or torn by the needle at its centre. When this is the case the operator should detach it in every part, save that near which the needle entered, and endeavoured to depress it. If this attempt should fail, and the capsule floats again into the axis of vision, it ought to be removed as in the first instance, through an opening in the cornea.

In congenital cases, when the cataract is capsulo-lenticular, Mr. Guthrie prefers the posterior operation for the destruction of the capsule, to the anterior, as recommended by Mr. Saunders.

When the cataract is fluid, and the capsules opaque, he advises the same operation, making use of Scarpa's or the curved needle, which offers a greater facility in destroying the capsule. The complete dilatation of the pupil yields so large a sphere for its action, that an error can scarcely be made by any one accustomed to its use; and if, after the fluid has been absorbed, the capsule should not appear to have been sufficiently destroyed, the operation for capsular cataract already described must be resorted to.

We have thus touched on some of the most important parts of Mr. Guthrie's book; others, which are more systematic or less generally interesting, we have passed over; among the latter is the subject of artificial pupil, which occupies a considerable part of the volume, but which consists almost wholly of the distinct and well known treatise which the author has already given to the public, and which does not consequently require our analysis.

MONTHLY SUMMARY

OF PRACTICAL MEDICINE.

I. ANATOMY AND PHYSIOLOGY.

M. LISFRANC on the Uvula.

In an excellent paper on the Anatomy, Physiology, and Pathology of the Uvula, M. Lisfranc regrets that he could find little precise and scientific information concerning it in systematic works. The dimensions of the uvula are various. He has seen two subjects in which it appeared like a very short tubercle, though otherwise voluminous. In another case he found it of its ordinary length, but as fine as a thread. These circumstances he thinks could have but little influence on the voice. Hagerdorn, in the *Ephemerides des Curieux de la Nature*, gives the case of a girl born without a uvula, in whom the voice was unaffected and natural. In the same work Vallguadius mentions a bifid uvula, in a subject who at the same time had a hare-lip. Both Roux and Lisfranc himself have observed similar cases. It is wanting in all animals but man; careful dissection proves that the uvula, when very thin, and represented in a tubercle, is wholly composed of mucous membrane and a great number of

follicles; and the bifid state, or the absence of the palato-staphylini muscles in its thickness, will cause its descent. The uvula is formed by these muscles, whose supporting fibres separate as they approach it, and their prolongation is covered by a mucous membrane enclosing a greater quantity of follicles than has been hitherto pointed out. Under this is a close cellular tissue, studded with small glands, whose organization resembles that of the tonsils, and the thalamus of the crypta agglomerata, found under the mucous tissue of the velum pendulum palati in the horse and other animals. The free extremity of the appendix appears to be destitute of muscular fibres.—Here M. Lisfranc has repeatedly found three mucous follicles much developed, very distinct, and susceptible of augmentation, to about a third of the usual length of the uvula. M. Boyer has observed upon this point a small transparent tumour produced by the accumulation of serosity. Frequently the appendix is soft, chiefly towards the top, and makes a similar structure to that of the nasal polypi of the mucous membrane. It is needless to say that it may become scirrhus, carcinomatous, and even cartilaginous, and that it is often in a state of procidentia.

The remark of Hagerdorn opposes the conclusion that the uvula concurs in the formation of the voice; and many patients who have had it removed by operation, show that it has but little influence on the articulation of sounds. Many physicians know that venereal ulcers have destroyed both the uvula and the pillars of the velum, as well as the epiglottis, in distinguished comedians, and that notwithstanding the character (*timbre*) of the voice has lost nothing of its pliancy and freshness. If syphilis alters the voice, says M. Bielt, by the destruction of the uvula, it is not so much the want of the uvula as the deep morbid taint which the disease has given to the rectum and the parts in its vicinity, and which is beyond the reach of cure. Our author believes with Richerand, that the uvula is destined to advertise the pharynx of the arrival of aliment; and that it furnishes from its numerous follicles, mucus to facilitate the passage of the food. M. Lisfranc, besides, thinks he has discovered and proved that the uvula serves to prevent the nasal mucus from falling into the glottis. Its movements in this point of view may be seen by opening the mouth before a mirror, and strongly drawing in the breath. The strongest proof of this, however, is, that when a complete case of procidentia occurs, or when it has been entirely removed, the nasal mucus very readily gets into the glottis during a slow and long drawn inspiration.

II. SURGERY AND MIDWIFERY.

DR. DUFFIN'S case of *Ligature of the Carotid Artery.*

On the 11th instant, early in the forenoon, I was requested to visit Lilius French, a delicate child nearly four years of age, who was reported to have been bleeding profusely from the mouth, from about one o'clock in the morning, in consequence, it was supposed, of the rupture of a vessel, occasioned by an attack of vomiting that had supervened during the night.

I found her lying on her left side, insensible, and completely blanched from loss of blood. The breathing was anxious and hurried, the extremities were cold, the pulse extremely quick, when felt in any of the larger arteries, but imperceptible at the wrist or ankle. An extremely fetid odour, like that of a sloughing part, was exhaled from the fauces; the mouth was half open, and filled with a coagulum of blood which protruded between the teeth, and florid blood, though in no great quantity, trickled over the left and depending angle of the mouth. A soft doughy, colourless tumour occupied the whole extent of the right side of the inferior maxilla, extended along the base of this bone, and under the tongue. Upon separating the teeth to examine the nature of this tumour, a portion of clotted blood, situated over the molar teeth, suddenly gave way, and instantly a quantity of arterial blood gushed from the part, appearing to come from between the gums and alveolar process. The coagulum was immediately replaced, and pressure applied to the bleeding point by means of the finger of a bystander, until some more permanent method of restraining the hemorrhage could be had recourse to, which, on its first attack, had apparently been prevented from proving fatal only by the supervention of syncope.

A basin, containing about an English quart of blood was presented to me, which, I was informed, had been collected upon the accession of the bleeding; and I was assured, that more than half as much again had been lost before I saw the patient.

Conceiving, from the present exhausted state of the child, and the ungovernable nature of the hemorrhage, that the only means of affording even a chance of recovery consisted in tying the main trunk of the bleeding vessels, the necessary instruments were immediately procured, and, returning with my friend Mr. Syme, to whose kind assistance I owe many acknowledgments, I immediately proceeded with his aid, and that of his pupil Mr. Evans, to pass a ligature round the lower third of the common carotid artery, in the usual mode of performing that operation; and, from this period, the hemorrhage ceased.

In about twenty minutes afterwards, the pulse returned in the wrist, the extremities acquired a considerable degree of heat, and the breathing improved.

As the child was unable to swallow, a glyster of arrow-root mucilage, with a little spirits, as the readiest stimulant that could be procured, was administered, and with apparently good effect, as the sensibility greatly increased, and the powers of deglutition returned in rather better than an hour. Beef-tea and wine were then given in small quantities at intervals, by means of an injection-bag, and every symptom augured favourably until about eight o'clock P. M., when the pulse rapidly sunk again, slight convulsions attacked the face, and the girl died.

Upon inquiry, it appeared that this patient had suffered excruciating agony in the situation of the disease for a period of more than three weeks; but as this was considered to arise from toothach or gumboil, no advice was taken.

Dissection.—An incision being made through the integuments from the angle of the jaw to that of the mouth, and another bisecting this, which was continued in a straight line along the side of the neck to the point at which the artery was tied; the skin and cellular texture were dissected back, so as to expose the tumour in its whole length, which appeared of a purple colour, extended from the ramus of the inferior maxilla to the symphysis menti, and passed under the tongue, external to the glosal muscles, but internal to the digastric, including the jaw-bone in its centre.

The inferior maxillary gland was much diseased, softened in texture, and of a brown hue. Upon cutting into the tumour, it was found to contain about three ounces of grumous blood, the sac being formed by the periosteum, which was separated from the bone in its whole length, both internally and externally, from the capsular ligament of the articulation to the symphysis of the chin, and at the base of the bone, to a little beyond this point. Upon sawing through the bone a little to the left of the symphysis, and removing the right half of the jaw, it was found that the inferior maxillary artery was of very considerable size, diseased in its whole extent, of a dirty brown colour, easily lacerable, and so loosely attached to its osseous canal, that it was withdrawn from it entire, in the same way as a clot of blood may frequently be taken from a vein after death. It appeared ulcerated immediately at the point where it gave off the first branch to the teeth, and there existed at the corresponding portion of the bone a carious aperture, through which the blood had issued and insinuated itself as described. The last molaris was carious, and the other teeth of the same side were loose in

their sockets. The body of jaw, as might be expected, was discoloured and dead, and the gums were in a sphacelated condition.

In all probability this case might have had a more favourable issue, could the nature of the disease have been ascertained at an earlier period ; but unfortunately it was incurable before advice was sought for.—*Edin. Med. and Surg. Journal.*

III. PATHOLOGY AND THERAPEUTICS.

DR. MOULSON on Spasmodic and Convulsive Diseases.

Having frequently been baffled in my attempts to cure spasmodic and convulsive diseases by purgatives, and having lost one or two children, when treated according to the principles laid down by the most celebrated practitioners who have written upon the subject, I was determined, the first opportunity that offered, to investigate anatomically the nature of these diseases, in hopes that a more successful practice might be deduced from appearances on dissection. Soon after these failures, a case occurred in the practice of my friend, Dr. Sanders of Edinburgh, which being proof against any internal remedies, I carefully noted down the different muscles spasmodically affected, that I might see whether any difference existed between them and those that were free from spasm. Permission being obtained to examine the child's body, the contents of the abdomen and thorax were found perfectly free from disease, but upon carefully examining the brain and spinal marrow, there appeared sufficient evidence to account for the spasmodic contractions, the cause of the child's death. The nerves distributed to the muscles previously noted down (whether proceeding from the brain or spinal marrow) were found to have at their origins,* the blood-vessels preternaturally turgid with blood, whilst the blood-vessels ramifying upon the nerves distributed to the muscles free from disease were perfectly natural. These appearances being put to paper, and reasoned upon at leisure, an opinion was formed, that could a sufficient quantity of blood be abstracted from those parts labouring under this turgescence, the disease would be removed. After this dissection, a case of chorea occurred in a girl about 14 years of age, and the purga-

* By the word origin is here meant, that part of the brain or spinal marrow whence a nerve is seen to emerge immediately upon removing its membranes.

tive plan was prosecuted to the fullest extent : instead of the symptoms being alleviated by this treatment, they were aggravated, insomuch that she was obliged to be held down in bed by her father to prevent her from injuring herself. In lieu of this treatment, leeches were applied to the spine, followed up by blisters and frictions along its whole course, and by these means she completely recovered in a very few days. This is only one of the many examples I could adduce, of cases, in which the purgative plan failed, and which were relieved by the treatment above mentioned. Having found that abstraction of blood from as near as possible to the origins of the nerves distributed to muscles spasmodically affected had the effect of alleviating the disease, and that a cure was completed by blistering and friction ; a case occurred in which I was determined to employ them without the aid of medicine. A boy, about eleven years of age, was playing with his school-fellows, when suddenly he fell upon the ground in convulsions. When I first saw him, he had been an hour convulsed ; the pupils of his eyes were widely dilated, mouth firmly closed, and his hands clenched. I immediately ordered eight leeches to the nape of the neck, desired that as much blood should be obtained as was possible, by the assistance of cloths wrung out of warm water ; and that afterwards a large blister should be applied to the part. At two o'clock, P. M. I saw him first, when the leeches were ordered ; at six, P. M. the blister was put on ; and at ten, P. M. he was free from convulsions, and spoke quite rationally to his parents. The next day he was walking about the house, when I ordered him a laxative ; and the third day from his attack I saw him flying a kite in the street. To enumerate cases of this kind, I think unnecessary ; but must observe, that in every case of convulsions that has terminated fatally, I have invariably found turgescence at the origins of the nerves distributed to those muscles that were affected.—*Med. Chirurg. Review.*

MR. COOKE on *Hydrophobia.*

Since the time of Morgagni the bodies of numerous hydrophobic persons have undergone minute investigation ; but unhappily the result has not yet been such as to afford any greater confidence of mitigating the heart-rending symptoms which distinguish this disease, or such as to excite any expectation of averting its speedily fatal termination. This, perhaps, is the most justly dreaded of any malady to which the human body is

exposed ; and no practitioner merits the satisfaction of a peaceful mind, after the unsuccessful discharge of his professional duty, if he voluntarily resort to temporizing and useless expedients when he might extirpate the bitten part.

It will not be compatible with my present undertaking to extend my remarks further than pointing out the general features of the cases alluded to ; and in doing this I shall pass over the symptoms. Unfortunately they have been so often and so touchingly delineated, that to recapitulate them would be a work of supererogation.

The time at which the symptoms of canine madness occur is extremely uncertain. There are insulated but strongly characterized instances in which their onset was observed within fourteen days of the bite, but those who have most frequently witnessed the disease, place their occurrence at a more distant period. The disease appears seldom to arise earlier than three weeks, and in most cases the intervening time exceeds this period, and extends to an indefinite term of weeks, months, or years. It will, however, be found to have transpired most frequently before two or three months have elapsed ; but as far as we can rely on phenomena which pass under observation, and which associate the hydrophobic symptoms with a previous and suspicious bite, some years have glided away between the insertion of the poison, and the consequent disease. Morgagni alludes to the term of twenty, and even forty years, but these statements must be received with great distrust.

Occasionally this affection discovers itself before irritation completely ceases in the injured part, when as a precursor of the secondary disease the morbid action increases, and is propagated in the course of circulation, I may elucidate this by referring to a case related by Mr. Webster. A man was bit in the hand July 21st. He never entirely lost the sensation of pain in the part. On the 16th of August the pain became more severe, gradually extended up the arm to the shoulder and breast, and on the 19th the arm was immovable. He was first visited by Mr. W. on the following day. The pain was excruciating, small cicatrices of red colour were observable on the hand ; and the man was unquestionably labouring under hydrophobia. Though comparatively of rare occurrence, there have been instances in which after complete cicatrization, and the entire cessation of excitement, the scars have again become inflamed, and the inflammation has been accompanied with itching and pricking sensations. In the generality of cases the wound has completely healed, and has ceased to awaken the least attention ; and though sometimes a degree of redness comes on,

in most cases there is no such premonitory token, or it is so slight as to elude observation. To this point, however, great attention ought still to be directed, for were it possible to determine only the frequent occurrence of this intimation, some hope may be entertained, that by timely interposition the horrible distress, and the melancholy catastrophe which otherwise await the unfortunate individual may after all be averted.

On examination after death, no uniformity has been observed in the morbid appearances. In most cases there are striking marks of cerebral congestion; the vessels are loaded—indeed sometimes gorged with blood. The tunica arachnoides has occasionally been inflamed and thickened, and a redundancy of serum has been found pervading the surface of the brain and distending the ventricles; and bubbles of air have been found blended with it. The structure of the brain is often exceedingly firm. The mucous membrane of the larynx, trachea, and bronchia, as well as of the pharynx and œsophagus present more constant appearances of augmented vascularity. This appearance has varied in degree; sometimes representing a slight blush of inflammation, at others the inflammatory action has been more conspicuous, but with equal if not greater frequency it has borne the aspect of congestion of blood, appearing, from the lividness of colour, as if the affected parts were verging to gangrene. The œsophagus has been found in a contracted state, and this tube, as well as the trachea, has been observed to be destitute of its natural moisture. An unusual prominence has been noticed in the papillæ of the tongue. The lungs are often the seat of excessive congestion of blood, and the pleura is occasionally inflamed. The heart is sometimes enlarged, and its vessels appear in a state of turgidity. The inner coat of the stomach frequently exhibits a plethoric condition of vessels with numerous spots, which seem to be owing to extravasation of blood; the rugæ being large and prominent. In this state of increased vascularity the diaphragm has not unfrequently participated. The liver and other viscera have occasionally presented indications of similar disorder, which might indeed be expected under such exquisite nervous susceptibility, such mental perturbation, and such vascular excitement, as are associated in this disease. The inequality in the distribution of blood is often denoted by the comparative state of the larger vessels after death, some of them being loaded with blood when others are empty. It is a circumstance worthy of notice that in many of these bodies, putrescence occurs soon after death.

The infection is usually imparted by the bite of a dog or cat; in India, the jackal is also an agent of its propagation. M.

Breschet is reported to have communicated the disease to a dog by inoculating him in the neck with the frothy saliva of a man under hydrophobia. Morgagni believed that the disease had even arisen from the virus having only fallen on the human skin, but this is scarcely credible.

Symptoms which greatly resemble those of rabies contagiosa have arisen from moral impressions. An anecdote is related by Morgagni which shows how powerfully the mind may be agitated, even where the intelligent and professional character of the individual would have forbidden the expectation of such an occurrence. Alberto Fabbri, who was the first physician in Bologna, a little before Morgagni's time, was seized and strongly held by one hand, by a patient labouring under hydrophobia, while he was feeling the pulse with the other. He became so extremely dejected, as scarcely to command his reason, and the idea of self-destruction often occurred to him. For seven days he had abstracted himself from society, when his attention being rivetted through perpetual gloom, he was wetted to the skin under a heavy shower previous to his being conscious of it. The place was solitary, and before he could obtain shelter his melancholy was washed away. It is probable his imagination was influenced by a reliance on the efficacy of a sudden and unexpected profusion of water in averting hydrophobia. Here certainly no hydrophobic symptoms had arisen, but in other cases, from equally unwarrantable grounds, they have been developed; and perhaps but for the propitious shower, a modification of them, at least, might have been the destiny of Fabbri. —Cooke's Edition of Morgagni.

MR. WARD'S case of Hemiplegia from Softening of the Brain.

George Franklin, aged forty-two, came under treatment May 14th. The account he gave of himself was as follows:—He was seized suddenly, when in the act of walking, with paralysis of the left side, accompanied with occasional tremors. Previous to this circumstance he had not felt any of the usual premonitory symptoms of the disease, neither pain in the head nor vertigo. At the time of seizure he lost his speech and the sight of his left eye, as well as his hearing in the left ear, but regained them two days afterwards.

At this time, he has much numbness, with a sense of coldness, in the left arm and leg, which are in a complete state of paralysis; tremors are less severe; bowels open; pulse 88. During the last night he perspired considerably, for the first time since

he was taken ill, when he appeared to have some little power in the paralysed side. He was ordered the purgative plan of treatment, and a warm bath every other night.

May 19th.—He appears better ; during the time he was in the warm bath, he could use both his left arm and leg freely ; he has gained much power in his arm ; and on coming out of the bath, he walked twenty yards without assistance ; appetite good ; bowels free.

26th.—The lower extremity is so much improved that he can walk well ; the arm appears to be nearly stationary ; complains of pain in the shoulder ; the fingers are rather stiff and contracted ; continues to move his arm better in the warm bath than elsewhere.

28th.—He was seized with an attack of gastrodynia, which also affected his breathing ; bowels having been acted upon too freely, the purgative medicine had been discontinued—he was ordered empl. lyttæ epigastrio, mist. cretæ.

June 2d.—He has more pain in the left shoulder ; a perfect use of both upper extremities whilst in the bath, but it does not continue in the left for more than half an hour afterwards. In other respects, he is better.

12th.—Last night he had a sensation of considerable heat over the paralytic arm, which continued for some hours ; during this time he could move it with considerable freedom ; he still continues to be sensibly benefited by the bath ; has had rather profuse perspiration ; sleeps indifferently ; bowels regular. He was now ordered argent. nitr. gr. j. ter die.

30th.—Up to this day he continued the use of the warm bath, which always relieved him during the time he was immersed, having invariably nearly as perfect use in the left as in the right side ; latterly, has observed that the paralytic arm is stronger on first waking in the morning, and continues so for about two hours ; the muscles of the arm are painful and tender. In other respects, he continues the same.

July 7th.—Complains of severe giddiness when he attempts to rise in bed ; has much pain in the shoulder of the paralytic arm ; has slept but little for the last two or three nights ; bowels open. V. S. ad 3xvj., and calomel with jalap every other morning.

30th.—Since the last report he has been falling gradually into a state of fever, without any remarkable circumstance supervening, except that he continued gradually sinking : this day he died.

On examination after death, the right hemisphere of the brain presented an opaque appearance on the arachnoid membrane ;

the arterial capillaries were injected, and the veins turgid ; the appearance on the left surface was nearly natural ; about an ounce of serous fluid in the ventricles ; the base of the right hemisphere was completely disorganized, and had a soft pulpy appearance, which at this part was very extensive.

There is one circumstance in this case which is not unworthy of remark, viz. the good effect of the warm bath upon the paralysed arm ; for as the paralysis depended on a diseased brain, and that disease was organic, and consequently not itself to be materially affected by the bath, the warm water must have produced its good results by acting on the limb itself ; it will readily be conceded that no material alteration could be produced in the organic mischief existing in the brain, because, as soon as the effects of the warmth passed off, the disease recurred with its original vigour.—*Lond. Med. Repository.*

MR. WHITE on Ulceration and Rupture of the Heart.

A man, aged seventy-seven, strong and muscular for his years, was, on the 19th March, 1823, while at work, seized with pain of the chest, extending from the spine to the sternum. It was accompanied with an immediate failure of strength. He complained of great anxiety and oppression, but without dyspnoea ; his pulse extremely small and feeble, but regular and not frequent. Nothing unusual was remarked in the action of the heart. He lived ten days in this state, with very little change in his symptoms. There was a constant dull uneasiness, occupying the region of the heart, and extending to the back ; extreme anxiety and restlessness, leading him to seek relief from a constant change of posture. When in bed he generally lay on his back, but was seldom observed to sleep, and often got up and sat by the fire, as if expecting relief by the change. On the evening of the 28th his anxiety and restlessness increased ; and, in attempting to get out of bed, he suddenly expired. For three days before his death he had passed much blood by stool.—Twenty years before his death he received a severe injury by falling with a load upon his back ; after which he was apt to start in his sleep, and never could lie on his left side, though otherwise in good health.

Dissection.—The cavities of the pleura contained about ℥ij. of fluid. The lungs were sound. The pericardium appeared greatly distended, and, when opened, was found to contain an immense quantity of coagulated blood. The heart was much

enlarged, and very flabby ; and it was covered externally by a layer of coagulable lymph, which was easily peeled off, and seemed to be of recent formation. The aperture from which the hæmorrhage had taken place was in the left ventricle, about half way betwixt the base and the apex, and close by the side of the septum. Externally it was of such a size as would have admitted a catheter of the largest size, but internally this communicated with an ulcerated cavity the breadth of a shilling, by which the substance of the ventricle seemed to have been gradually eroded. This cavity communicated not only with the external opening, but also with the right ventricle, by a perforation of the septum. The left ventricle was much enlarged, and its parietes were thinner than natural. One of the semilunar valves of the aorta was partly ossified. The abdominal viscera were healthy.—*Trans. of Med. Chirurg. Society.*

M. M. MAGISTEL and VILLERME on *Sublingual Pustules in Hydrophobia.*

We mentioned, in our former series, the communication of Marocheti, of Moscow, respecting the sublingual pustules observed by him in hydrophobia, and also the failure of M. M. Magendie and West, in discovering any pustules in a case under the care of the latter. M. Magistel, of Saintes, it would appear, has been more successful than Mr. West. Several individuals of both sexes, and some sheep, having been bitten by a rabid dog, M. Magistel was sent by the administrative authorities, and he cauterized the wounds forty-eight hours after the accident. He carefully watched for the appearance of the pustules mentioned by M. Marochetti ; and in several subjects confided to his care, he observed pustules arise, unknown to the patients, without any precursory symptoms, and without occasioning pain, or cramping the movements of the tongue. Some of these pustules appeared on the sixth day, others subsequently, and the last on the thirty-second day. The cauterization of these was soon followed by their perfect cicatrization, no traces remaining of them, and the cauterized parts being in the best possible condition. The *decoctum genistæ* was perseveringly administered to all those who were bitten, and was used for washing the wounds, which unfortunately had not been cauterized until forty-eight hours after the accident, except incompletely, by the nitric acid, at the expiration of more than forty-five hours. Of ten bitten, whom M. Magistel attended, many of whom had re-

ceived numerous and deep wounds, five died with all the symptoms of the most confirmed hydrophobia, in spite of the uninterrupted use of the *decoctum genistæ*, and the cauterization of the sublingual pustules.

The preceding facts are farther confirmed by the following : M. Villerme has communicated to the Royal Academy of Medicine the case of a female, whose upper lip was torn by a mad dog. The wound was cauterized at the end of thirteen hours. On the eighth day, a transparent pustule was seen under the left side of the tongue, of the size of a lentil, similar to the pustules observed by M. Magistel under the same circumstances. On the following day this vesicle had disappeared, but was replaced by another, which only lasted twenty four hours. On the tenth and eleventh days, several other pustules shewed themselves ; but after that period no others were observed. It is added, that three weeks have elapsed since the bite, but as yet the woman has not shown any signs of hydrophobia.—*Anderson's Quarterly Journal*.

IV. MATERIA MEDICA AND PHARMACY.

Mr. MILL on *Lupulin*.

Preparations of the hop have been occasionally used in medicine in this country. The whole of the plant has usually been employed to form a tincture, but from the extraneous matter introduced by this means, it has doubtless rendered this medicine inert, if not prejudicial. Dr. Ives discovered that the true aromatic bitter of the hop resided solely in a pulverulent matter, which he called lupulin, for the collection, preparation, and administration of which I am about to give specific directions.

Take any quantity of the best hops, and rub them strongly between the hands, or put them in a bag, and beat them for some time ; when the beating is completed, throw them on a coarse wire sieve, which will only suffer the dust, &c. to pass it ; let them be well rubbed on the seive till every thing has gone through except the leaves and stems of the plant ; reject the leaves and stems altogether, and sift what has already passed the wire through a lawn sieve ; nothing will now pass but a very fine powder, resembling red sand ; this is the lupulin, in which the whole virtue of the hop resides.

The preparations of this substance which I have found to be most efficacious are the decoction and tincture.

The decoction may be made by putting a sufficient quantity of lupulin into a Florence flask, in a sand heat, and filling it three

parts full with distilled water ; boil the whole for half an hour, and strain through cotton cloth. The solution thus obtained will be feculent, and does not become clear by repose ; therefore add, while hot, a small quantity of solution of gelatine in hot water ; shake the whole together, and let it remain till cold, then filter through paper, and a clear yellow liquid will be obtained. It is intensely, but not unpleasantly, bitter ; and when administered in doses of a tea-spoonful at a time in a table spoonful of cold water, is a true stomachic. It is tonic, narcotic, and aromatic. It does not produce constipation of the bowels, as almost all other tonics do. It appears to act entirely on the nervous system, and may be prescribed with manifest advantage in all cases of debility and inaction of the digestive organs where powerful tonics would be injurious.

The tincture may be prepared by digesting the lupulin in *strong and warm alcohol*, till saturated ; when it must be filtered through paper, and a deep-red solution will be obtained.

From forty to sixty minims of this tincture act as an anodyne, and have a powerful effect in allaying great nervous irritation ; and that stupidity which often accompanies the use of opium, is never induced by this medicine.—*Med. Repository.*

MR. MARLEY on the efficacy of *Cubebs*.

In the month of June, 1821, I published some observations on the efficacy of cubebs in gonorrhœa, with a promise to renew the subject when I had given the medicine a more extended trial ; and, having done so, I am anxious to lay the result before the profession. I am aware of the contrariety of opinion that exists respecting the effects of cubebs, and on that account I am the more desirous of giving publicity to the continued success of my practice. By advancing opinions so contrary to those held out by many men so deservedly distinguished in our profession, I, with feelings of diffidence, perform a duty almost necessarily imposed on me. I then gave the result of my experience in a few cases ; but having had, since that time, an opportunity of giving the medicine a more extended trial, I can now, with still greater confidence, speak of its good effects. It puzzles me to think why there are so many opposite opinions respecting the effects of any one medicine ; for I can fairly and conscientiously say that I have, almost invariably, met with success in those cases where the medicine was applicable,—namely, those of a recent nature.

I have occasionally met with cases where the medicine seemed to have no influence whatever, and I think I may here mention that, if sensible effects are not produced by the time a couple or three ounces have been taken, we had better entirely discontinue it. We may lay it down as a general rule, that a case of above a month's standing will seldom or never yield to the use of cubebs.

Respecting the dose, we should never give less than an ounce in the course of twelve hours ; at the same time, the patient should strictly adhere to the antiphlogistic regimen. We are all aware that there is great difficulty in persuading patients to follow the rules laid down for them ; and, to their non-compliance on this point, we may sometimes attribute the failure of many valuable remedies, as well as of the medicine under consideration. Sometimes (no matter in what form we exhibit the medicine,) the stomach will be found to reject it : in such cases, I have found five or six drops of the tincture of opium of use in allaying the irritability of that organ. The bowels are sometimes constipated, and, when this is the case, the head, as we might expect, generally sympathises : a brisk purge is here indicated, and will be found to give the patient relief. In cases not of a very recent nature, I have found it a good plan to let a copious evacuation precede its exhibition, which may be obtained by three or four grains of calomel at bed-time, and a neutral salt in solution the following morning. I must here remark, that it is absolutely necessary to continue the medicine, with the same restrictions, for three days at least after the discharge has subsided.

It would be useless for me to dwell any longer on the subject ; therefore I shall conclude by saying, that I hope and trust the warmth with which I have recommended the medicine will not be construed into any other wish than that of a laudable desire to see introduced into practice, more generally, a remedy that, in one of the most troublesome and frequent complaints, possesses the most specific effects.—*Lond. Med. and Phys. Journal.*

MEDICAL LITERATURE OF THE
UNITED STATES.

Medical Recorder of Medicine and Surgery. VOL. VII. NO. II.

ART. I. *An Abstract and Analysis of those causes, which favour and impede the Progress of Medicine.* By SAMUEL COLHOUN, M. D.

In this paper Dr. Colhoun has enumerated some of the causes, which have extended the errors of medical science or retarded the progress of medical practice. He has also enumerated some of the measures, which are calculated to correct the one and promote the other.

ART. II. *An Essay on Strictures of the Urethra.* By H. G. JAMESON, M. D.

Dr. Jameson has related several obstinate cases of stricture, which were successfully treated by making an incision into the perineum, laying open the urethra, and dividing with a bistoury and director, the sphincter muscles by which it is surrounded. The operation appears to have been attended with some difficulty, but the successful issue of numerous cases will, we should think induce other surgeons to adopt it. "I have reported ten cases in which I opened the urethra, and thereby cured the most deplorable strictures; and one case attended with a relapse, in which mortification took place, and yet the patient recovered; making of course eleven successful cases. Among these cases there have been four of mortification of the scrotum, one accompanied with fistula in the perineum, two in which the urethra was opened both through the penis and the perineum. And it is further to be understood, that no unfortunate cases have been concealed, and that from the time I commenced my operations upon the urethra, I have not lost a single patient.

I trust the number here reported, are amply sufficient to establish both the safety of the operation, and the certainty with which we may rely on a cure of stricture of the urethra by it."

ART. III. *An Essay on the Autumnal Fever of Brunswick, Virginia.* By THOMAS B. MERRITT, M. D.

In the first volume of our Journal, we noticed the paper of Drs. Miller and Lucas, on the epidemic fever of Brunswick,

which, to say the least was treated with Herculean remedies. On that occasion we complained of the deficient data which the writers had furnished to sanction extraordinary if not dangerous practice. The paper of Dr. Merritt is liable to the same objection ; not a case is related from which we can form an opinion relative to the accuracy of his opinions or the success of his practice. This is the more unfortunate since Dr. Merritt, has without much courtesy, denounced the practice, pursued by Drs. Miller and Lucas, and in so doing has left us as much in the dark as ever.

"These physicians resorted to the most unparalleled stimulation ; Brown, himself, would have shuddered at their excesses, and frowned at this strange perversion, and unscientific application of his principles. They administered bark and wine, and ardent spirits ; these, however, increasing the disease, the patient was conceived to be in a sinking state, and larger doses of these and other stimulants were given. These being, in their turn, attended with the same, or similar consequences, were succeeded by still larger doses. A state of collapse, subsequently remedied by stimulants, in some instances ensued in consequence of this practice ; often some organ, important to life, became affected with irretrievable disease."

ART. IV. *Operation performed and recommended for the cure of Imperforate Anus.* By JOHN RHEA BARTON, M. D.

In each of these cases the rectum terminated in the vagina, so that there was not the slightest trace of an anus, *in situ naturali*. Under these circumstances Dr. Barton determined to lay open the vagina and integuments by means of a bistoury until he reached the termination of the intestine.

"By this operation, the anterior boundary of the incision would be the fistulous opening in the vagina ; and posteriorly, it would terminate where the natural outlet ought to be found. The subsequent treatment to consist in endeavours to promote granulations and the cicatrizing of the original opening, and so much of the anterior portion of incision as rendered the vagina incomplete ; in the mean time, to keep the remainder open until this shall have been effected. This plan was pursued, and I had the pleasure to succeed most perfectly in all my views.—The integuments around the incision retracted, and thereby obviated the necessity of removing them. The original aperture closed up, with that part of the incision connected with it. The vagina became complete, and a route direct from the rectum was established, having no communication whatever with the vagina."

In another case and under somewhat similar circumstances, the same operation was performed by Dr. Parrish, with the most satisfactory success.

ART. V. *Case of Adhesion of the Sides of the Uterus.* By JOSEPH WHEELWRIGHT, M. D.

A poor woman was in labour of her tenth child. "A hard tumour, of an uniform surface, from one and a half to two inches diameter, was felt occupying the place of the os tinæ. Its adhesions to the whole circumference of the vagina were distinctly traced. No vestige of the os tinæ remained; there was no opening, and of course no relaxation.

"As the action of the uterus was now sufficiently strong to expel the fœtus under ordinary circumstances, and still no change was effected, it was determined that an artificial passage would afford the only possible chance for the safety of the mother or child. A crucial incision was made through the tumour, which was hard and nearly an inch in thickness.

Little or no hemorrhage followed the incision. On examining through the opening, the head was felt presenting naturally. The labour advanced rapidly, but as laceration at the extremities of the incision had commenced, and as there was no prospect of the parts dilating, it was thought necessary to lessen the size of the head.

This was done, and the child was in a short time delivered by the expulsive efforts of the uterus alone. She was left with strict directions as to diet, &c. and recovered in the ordinary time, without the occurrence of any extraordinary symptoms; she afterwards menstruated regularly."

ART. VI. *Case of Empyema successfully treated.* By Dr. CRAVEN.

In this case, the ribs were supposed to have been carious, the intercostal muscles absorbed and the cartilages detached. About three gallons of pus were evacuated.

REVIEW.

ART. VII. *Essay on Typhous Fever.* By N. SMITH, M. D.

